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Presidential Address
ON
THE NEGLECTED SIDE OF MEDICINE*

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THIS address has been written on the assumption that the Manitoba Medical Association is the organization which represents the medical profession of this province, and as such is largely responsible for its status and general activities. Full success for the profession should mean: (1) Service rendered to the sick of the land; and to the healthy, protection against disease; both to the highest possible degree. (2) For every member of the profession such conditions of life as will afford him an opportunity continuously to add to his scientific attainments, provided a reasonable degree of energy and ability is contributed by him. His financial remuneration should be commensurate with his ability and the amount and character of work done, and should be on a plane in keeping with the high standing of the medical profession in the community.

Do the members of the profession of this country conform to these ideals and secure for the individual members such a measure of success as this? My answer is in the negative, and I wish herewith to mention some of the abuses and faults as I see them, and in certain instances to suggest methods of procedure with a view to correcting the defects.

I would say these abuses fall into three classes:

(a) Those from which the public suffer.

(b) Those from which the medical men suffer.

(c) Those from which both the public and medical men suffer.

The last mentioned group is the most important because I think as a rule when the public is victimized in any way by a member of the medical profession, a certain degree of discredit is reflected on the profession at large, for after all are we not as a profession judged largely by the actions and conduct of our individual members?

I wish therefore, to record first, the importance of attacking the problem of unethical practice and conduct which exists to some degree in our own profession. We cannot hope to make the progress required in the matter of public enlightenment and obtain the necessary support and co-operation in the big matters ahead, if our own hands remain unclean; moreover, is it not hypocrisy to preach one doctrine and practice another?

The breaches of medical ethics vary in degree, and some of the border-line forms, such as card advertising in the daily press, are considered legitimate by some and not so by others. The danger here, I think, is the tendency to make false claims with a view to attracting patients. I think in the matter of advertising we would be well advised to adopt the report of the central Ethical Committee of the British Medical Association which was published in the supplement to the *British Medical Journal*, May 3rd, 1924.

Specialism.—Some authoritative statement should exist as to what are the recognized re-

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quirements leading to the development of a specialist. It may be that these requirements cannot, and possibly should not, at present be enforced, but the advice should at least be available for those who wish it, especially the young man just graduating, who for instance, may not know the great value of a few years' experience in general practice in developing his judgment in any branch of clinical medicine in which he may choose to specialize. Too little guidance is at hand for the young man just out of college, who is suddenly thrown on his own resources. This Association should at once endeavour to procure this man's membership, as we need his support and he may be in need of ours. I would therefore, suggest to this meeting the advisability of giving membership to doctors during their first year's practice at half the regular fee, or even less. The benefit, I feel sure, would be mutual.

On *Fee Splitting* I will not dwell, for the reason that it is already a live topic, and the Winnipeg Medical Society has now a committee working on the whole question.

The Electronic Reactions of Abrams, is one of the more modern forms of quackery and deception inflicted on the credulity of the public which should not be permitted. Flagrant forms of unethical practice should not be condoned in any form, and an effort should be made to expose them, seek out those guilty of the acts, and deal with them in a drastic manner. Their names have no right to blemish the medical register.

Possibly some of the blame for the presence of such individuals in the medical profession can be laid at the door of the system and policy of medical education in this province, which I believe, is not greatly different from that of the other leading medical schools in Canada. The medical faculty of the University takes upon itself the responsibility of training and developing a medical doctor who, on graduation, may become licensed to practice medicine and thereby immediately take upon himself the responsibility of treating the sick, and upholding the traditions of the medical profession. Surely in such a case some grounds other than purely academic should be considered before permitting the student to register in medicine. A confidential report could be prepared, based largely on the applicant's personal history, and especially his character and moral standing. Such a report, if properly prepared and properly utilized, could hardly do otherwise than improve the class of man entering our profession to-day, curbing as it would, the graduation of certain undesirables who are largely responsible for many of the iniquitous practices.

The Medical Faculties of Chicago and Minnesota Universities were, I think, two of the first medical schools to adopt some such policy, and it seems but right that our medical faculty should be accorded the same privilege. As a bank, a business firm, a fraternal order, and even our social clubs demand the right to refuse an applicant for a position, or a candidate for membership, on moral grounds, so surely the medical school has a more just claim to such a privilege, guaranteeing as it does, in a sense, to provide to the country competent medical men. It is most important that it should have the proper material to work on.

In the past some of our most desirable students and most capable men have come from a class so situated financially, as to make it imperative to earn during the summer vacation months all or most of the means necessary to carry them through the following academic year. The effect of lengthening the term for undergraduates to approximately nine months, leaves barely three months' vacation, which is insufficient time for such a student to earn enough money to pay his expenses during the succeeding term. The straightened economic conditions, during the past few years, of the rural districts from which many of these desirable students have come, have tended to militate still more against any probability of securing many of this class of student. A worthy movement would be the establishment of a fund by donation or otherwise, with the object of assisting desirable and deserving students of the class just mentioned. Such financial assistance would be entirely in the nature of a loan, so that the fund once established would tend to carry itself, if properly administered.

Another important question from the standpoint of medical education is that of limiting the number of medical graduates. Inasmuch as this should largely be based on the old law of supply and demand, it is just possible that

the medical profession of this province through its medical association, might be able to furnish expert advice on this question.

The whole question of medical education is a very important one to the profession. The students of to-day are the doctors of to-morrow, and as such should immediately come under the jurisdiction of the executive bodies of the profession. It is the duty of the Manitoba Medical Association to co-operate in every way possible with the Faculty of Medicine of the University of Manitoba, in the teaching, training, and developing of the very best type of medical man, and furthermore, in supporting the efforts of the school in the important work of medical research.

During the past year our medical school has again been raised to class "A," having for a few years been lowered, because of the establishment of a higher standard demanding an increase in the number of full time teachers. It is a matter or gratification to know that all these requirements have been complied with and the thanks of the profession is due the Dean of the Medical Faculty.

There is a great deal to be said on the various phases of the relation between the medical profession and the public. We have still with us the old question of the irregular practitioner in his various forms. To date, no irregular sect has received legal recognition in this province, the past year being the first of several that a bill with licensing power has not been brought up before the legislature by some such cult. Each time the representatives of the medical profession have successfully opposed it.

In spite of this we find the irregular carrying on his nefarious practices, undisturbed by the hands of the law. To correct this condition of affairs it would appear that two things must be done: (1) Enlightening the public on the true character of these cults; (2) Forcing the Attorney-General to prosecute all these quacks and charlatans, most of them practising under the cloak of the title "Doctor." As the first measure is carried out, the second will become easier.

The Workmen's Compensation Board of this province seems anxious to co-operate with the Manitoba Medical Association in administering the Act. It has had some serious differences with certain doctors, and the evidence in the hands of the Board, in some instances at least, would strongly tend to substantiate its claim. For more than a year a committee of three doctors, chosen from the executive of the Manitoba Medical Association, but who were also all Councillors of the College of Physicians and Surgeons of Manitoba, has existed, to handle the differences between the Board and the medical men. The members of the committee, however, felt that they were acting in a dual capacity, i.e., that of investigating the case with the Board, and possibly later having to sit on the case in Council in a judicial capacity. This committee was accordingly discharged one month ago for the reasons given, and a new committee appointed which has already been in session with the Board.

The duty of this committee is to act as a buffer between the Board and the medical men. Many differences can surely be set right. Wherever indicated, the medical man's case will be fairly defended and supported with a view to a just, and if possible amicable, settlement. It is no part of the duties of this committee to protect the medical man who is plainly and grossly in the wrong. When the case has been shown to be such, it is then handled by the Board and the College of Physicians and Surgeons. Unfair, and in some cases, dishonest, conduct on the part of an occasional medical man in dealing with the Workmen's Compensation Board is greatly to be deprecated. It is to be remembered that such conduct has a very great influence towards the establishment by the Board, of full-time, salaried medical men, few in number, to carry on their work. It is well to remember that the Provincial Government at its recent session appointed a committee of fifteen, (five from labour, five from employers and manufacturers, and five from the legislature), to act as a commission and go into the whole question of administration of "The Workmen's Compensation Act." It has been intimated that certain types of irregular practitioners have asked for a hearing, to press before the commission their claims for a share of the medical work, and the right to take and read x-ray plates, demanding that their interpretation be accepted and that they be paid for all work done.

These are important questions which we as a profession must be prepared to meet. If full

time medical men are to be employed in such public administrative bodies as the Workmen's Compensation Board, surely it is only a step to a broader form of State medicine.

The tendency of our civilization, in the past two decades particularly, has been towards socialism. Individualism has steadily receded, giving place to socialistic tendencies. Medicine has been a part of this; to quote Pusey: "There is an evident tendency now to appropriate medicine in the social movement; to make the treatment of the sick a function of society as a whole; to take it away from the individuals' responsibilities and to transfer it to the State; to turn it over to organized movements. If this movement should prevail to its logical limits, medicine would cease to be a liberal profession, and would degenerate into a guild of dependent employees." It is surely our duty to combat energetically this growing tendency, and should we not succeed, and some form of State medicine be inevitable, we as a profession, must be prepared to take an active part in forming the policy, seeing that the interests of our profession, and those of the sick, are adequately protected, rather than sit by passively taking what the economic and political interests care to give us. Too long have we as a profession ignored these points, and have permitted lay organizations to plan and outline various forms of administration of sick charity without the guidance of the medical profession in any way.

When one stops to consider the large number of entirely separate organizations dealing with the problems of social welfare, public health, and the various forms of charitable work, the question immediately arises whether there is not great waste of time and money through the overlapping of duties and the lack of co-ordination and co-operation of the various organizations.

The objective in each of these associations is essentially the same, viz, to secure proper care of the sick as well as the prevention of disease, and the hygienic improvement of social conditions generally.

There are in this city alone, over seventy organizations carrying on charity work in some form.

The governments of this Province spent in charity, $1,881,895.72 in the year 1921, and each year shows an increasing expenditure for this purpose. These figures do not include money upwards of $500,000.00 spent each year by the Red Cross Society and federated budget, exclusive of the unemployed relief expenditure. I think of the financial saving and improved service that might be rendered, if the whole great work was under one common head; a big organization with various branch departments, all coordinated and administered in a manner to eliminate the overlapping, so apparent at present. The medical profession has always stood for the highest principles in prevention of disease and care of the sick, and accordingly, should be the logical body to take an active part in directing movements of this kind.

I have enumerated a number of undesirable conditions which appear to me as important from the point of view of medical progress. How can they be taken care of in the most practical manner? My answer is "Organization." By organization I mean the development of a keen, competent, and equitable administration of the medical profession, purging itself of many present day evils, and developing a loyal, energetic interest in all its members, which should total 100% of the licensed men of this province. The confidence and co-operation of the public is of prime importance; without it, any big movement of this kind would be doomed to failure.

In my opinion the two great factors to be met and altered are: (1) Lack of sufficient public knowledge of matters medical. (2) Failure of the members of the medical profession fully to realize and carry out their just obligations to their profession, whether it be the minor delinquency of failing to contribute fully in action and goodwill to the activities and progress of their medical association, or the more flagrant misdeeds and gross violations of medical ethics, of which a few at least, have been guilty, not realizing that such breaches of ethics reflect discreditably on the whole profession.

To your executive on taking office at the beginning of the year it appeared highly improbable that any great progress could be made by this association with the half-hearted support of the majority, and the entire lack of support of a large number of medical men of this province. The fundamental movement at

that time seemed to be the building up of a sound energetic organization, thoroughly representative of the profession in this province. This, it was felt, would entail the development of active district medical societies, representing every section of the province, with each district society represented on the executive of the Manitoba Medical Association, the parent body of the province, which in turn would continue as at present, to represent this province on the council of the Canadian Medical Association. It seemed that this would give the best available results, provided each district society responded in an enthusiastic and co-operative spirit, actively perpetuating its existence by regular meetings, and familiarizing its members with the important medical questions of the day, so that the district's representative on the executive of the Manitoba Medical Association would carry to the central governing body a weight of constructive information and evidence.

In addition to securing these advantages, the existence of an active local medical society cannot fail in being of great value to every physician in the district, developing, as it does, scientific instruction, and the handling of local professional problems, and contributing to the general administration of the profession. The fraternizing entailed at such meetings makes for a better understanding among the practitioners of the district, and incidentally puts their work on a higher plane.

Following out this idea, a few members of the executive, after receiving the approval of the body proper, completed the organization of the profession of the province into districts. Two affiliated district societies already existed in the province, viz, the North-Western Medical Society, and the Brandon and District Medical Society. Three new rural districts were organized, and here I wish to pay tribute to the medical men in each district because of their enthusiastic and co-operative spirit at each meeting. The Winnipeg Medical Society at its April meeting moved to affiliate with this Association. This will be a great source of strength, representing as it will, the medical men of Winnipeg and district.

To the rural district societies' meetings the Manitoba Medical Association undertakes to send a speaker on a medical subject when so requested. This should develop into healthy post-graduate work for the man in the small town, who for many reasons finds it very difficult to get away to a clinical centre as often as he might wish.

To date, this work has been carried on with practically no expense to the Association, through the generosity of the doctors contributing of their time, knowledge and means. It would be too much to expect, as the work grows, that this policy should continue. I would suggest the establishment of a fund for carrying on this important form of scientific instruction.

This new policy on the part of the executive has required an entire revision of certain parts of the constitution, more particularly the character and form the executive shall take. The whole question will come before the business meeting for discussion and action.

If our medical organization is to progress in a satisfactory manner and is to take on activities and responsibilities which will reflect individual benefits on each doctor practicing medicine, is it not fair to ask that each doctor contribute to its maintenance? Why should one reap benefits for which his *confrère* is paying? The solution of this means compulsory annual registration, which would also undoubtedly have a disciplinary effect. Should such measures be thought wise, it would entail, I think, close co-operative action between the College of Physicians and Surgeons and the Manitoba Medical Association. This would be a healthy sign, and a real authoritative medical body might be evolved in this way, giving a sound and efficient form of administration.

Personally, I feel that the College of Physicians and Surgeons would be a more representative body if they were able to obtain the feeling of the profession on the many important matters coming before them. Without this it seems difficult to understand just how they can act in conformity with the wish of the profession they represent, the members of which vote the majority of them into power in a perfectly democratic manner. I can conceive then, of no reason why this Association should not interest itself in matters such as amendments to the Medical Act, and having done so, forward its recommendations on to the College of Physicians and Sur-

geons, which organization in turn, I think, would find its position greatly strengthened.

The question still remains as to how we are to gain the sympathetic understanding and energetic co-operation of the public. Without this we cannot make progress. Business and other forms of lay organizations, as well as the individuals, are waiting to be informed on the big questions of preventive medicine and of the care of the sick. Many of them have brightening mental pictures of the situation, seeing as they do, the abuse of public money in the present system of administration of our charities and public health institutions. They are groping about in the dark, wondering where to begin. I consider it is the duty of the medical profession to show the way in this big question, and by so doing, gain a more sympathetic understanding from the public.

This association should whole-heartedly cooperate with the Canadian Medical Association in its plans for public enlightenment, but each doctor must remember that such a movement can accomplish only a part of what is required. He must realize his personal responsibility in this matter and preach the gospel, so to speak, of public enlightenment among all his friends and patients.

There is evidence that certain sections of the intelligent public are realizing the importance of these big questions. The Life Officers Association of Canada at its recent annual meeting in Toronto appointed a committee to go fully into the question of public health, and the convener of this committee who visited Winnipeg two months ago was keenly disposed to have the medical profession guide the business concerns and public at large in the big questions of having all public welfare organizations, of which there are hundreds in Canada, come under a common administrative organization. Under date of June 10, 1924, he writes that his committee is fixing $250,000.00 as their contribution this year, but he is anxious as to how these donations are to be efficiently administered.

In the Eastern States we find such men as ex-President Eliot of Harvard, President Angell of Yale, Bishop Mann of Pittsburgh, Cardinal O'Connell of Boston and President Pendleton of Wellesley College, organizing a big society known as "The Friends of Medical Progress." This society is taking an active part in exposing the iniquities and deceptions of the various cultists who oppose the progress of scientific medicine.

An earnest effort I feel should be made to advance the interests of the medical profession in the direction suggested throughout this paper, and if this Association is to contribute fully and carry this movement to its logical end, I would respectfully suggest that an effort be made to procure the services of a young, energetic medical man, to act as permanent secretary, in which capacity he would be required to work out facilities for promoting and carrying on these important matters.

At the beginning a part time basis of service might be all that was necessary, but if the person chosen developed the proper mental attitude, and became enthused in his work and its possibilities, I feel sure that as the work developed his whole time would shortly be required, and that the advantages gained for the public and profession alike would far surpass the extra outlay in the way of a full time salary. This would be following the example set by Ontario a few years ago, which has worked out so satisfactorily that the Canadian Medical Association has absorbed the doctor in question because of his efficiency, and the possibilities in this work. Ontario, however, was able to pay a full time salary when it first engaged its medical secretary.

Could the goal of the public enlightenment be reached our progress would then be smooth; the sick of the land would be well cared for, and the problems connected with untrained cultists almost entirely fade away. As a profession we could then feel that we had contributed something of real value to the people of the land and to posterity, for it must ever be remembered that what of scientific truth and fruit of labour comes to us, we but hold in trust for those who are to follow.

To quote Omar Khayyam:—

"The moving finger writes; and having writ
Moves on; Nor all thy piety nor wit shall lure
It back to cancel half a line, nor all thy tears
Wash out a word of it."

ON ANATOMICAL TYPES AND THEIR RELATIONSHIP TO DISEASE*

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UPON the occasion of the opening of the Biological Building of McGill University on the 5th of October, 1922, Professor J. M. Coulter, of the University of Chicago, delivered an address on "The Botanical Perspective," in the course of which he gave expression to the sentiment that "prophecy is more stimulating than history." Without committing myself to a statement of opinion regarding the respective merits of these as stimulants, or discussing the question of which is the more profitable, I shall venture to put before you to-day a little of each.

The history of the study of different human types and their varying proclivities towards disease goes back practically as far as we have records of medical history in Europe. The early thoughtful physicians naturally gave earnest consideration to the problem of the nature and constitution of the human body, to whose ills they were called upon to minister. This problem, however, referred itself back to the more fundamental one of the constitution of the universe, of which the body obviously formed a part.

Empedocles, who flourished about 470 B.C., was the first to specify four elements, viz., air, earth, fire and water. The four elements were believed to be present in the human body, and further, the proportion in which the elements were present was held to determine the characteristics of the individual. A well-known example of this belief is found in Mark Antony's eulogy of Brutus in "Julius Cæsar"[12]:—

> "His life was gentle, and the elements
> So mixed in him that Nature might stand up
> And say to all the world, 'This was a man'!"

In addition to the doctrine of the elements, the physical properties of matter received attention, and certain of these were arranged in pairs of opposites. "Plato and Aristotle selected the hot and the cold, the moist and the dry, as the primordial opposites which by combination in pairs produced the four elements, earth, air, fire and water. Thus earth was cold and dry, water cold and moist, air hot and moist, fire hot and dry."[14] Milton refers to these opposites in his description of Chaos in "Paradise Lost"[9]:—

> "For hot, cold, moist and dry, four champions fierce
> Strive here for mast'ry."

Since the elements were composed of these pairs of contraries, and since the human body was composed of the elements, therefore these contraries also entered into the composition of the human body. Professor Walsh[14] states that "even before Hippocrates it had become the recognized hypothesis among medical men that disease was due to the excess or defect of the elementary contraries, hot, cold, moist and dry." From our present point of view it is interesting to note that these pre-Hippocratic physicians *looked for the cause of disease within the patient himself.*

From this arose the doctrine of the four humours. Like the four elements, each of the four humours was composed of a pair of contraries. The humours were blood, phlegm, yellow bile and black bile. The origin of the humours from the elements was fancifully depicted by Thomas Nabbes in 1637, in his masque *Microcosmus*, in which the four humours declare their parentage as follows:—

Choler (yellow bile):—"I was begot by fire."
Blood:—"Air is my father."
Phlegm:—"Water was my mother."
Melancholy (black bile):—"I was begotten on the earth after a great drought in the time of barrenness."

A curious parallelism was elaborated between the four humours, the four elements, the four seasons of the year, and even the four ages of man. The following translation given by Walsh of a passage from Galen is interesting: "Blood, air and spring are hot and moist,

*A lecture delivered to the Senior Anatomy Class, McGill University.

though others differ as regards the air. (He refers to the Stoics who assigned to air the quality of cold). Yellow bile, summer and fire are hot and dry. Melancholy humour, earth and autumn are dry and cold. Phlegm, water and winter are cold and moist. In youth there is an abundance of blood, in early manhood, of yellow bile; in middle or declining age, of black bile; in old age, of phlegm. Youth is hot and moist; early manhood, hot and dry; middle age, cold and dry; old age, cold and moist." It is important for us to note that the ancients held that *the constitution changed with age.*

It was believed that the four humours were present in different proportions in different individuals, and that upon this depended a person's "constitution" or "temperament." One humour usually predominated, hence four constitutions were recognized, according to which of the four humours predominated, viz., choleric or bilious, melancholic, sanguine, and phlegmatic.

It was firmly believed that humours affected health, by virtue of the qualities, hot, dry, cold, and moist, possessed by them, either deficiency or excess being followed by disease. This is perfectly illustrated in Chaucer's well-known description of the doctor in the Prologue to the Canterbury Tales:—

> "He knew the cause of everich maladye,
> Were it of hoot or coold, or moyste or drye,
> And where engendred, and of what humour.
> He was a verray parfit praktisour."

In those days it was a professional duty for a doctor to determine which of the four constitutions, or "complexions," as they were sometimes called, was possessed by his patient, and to *modify his treatment accordingly.* On this ground Bacon[1] censures quacks, or "empiric physicians," as he calls them, because "they know nether the cause of disease nor the complexions of patients."

Corresponding to the predominance of one or the other of the four humours, four mental temperaments were recognized, as well as the four bodily constitutions.

Although the doctrine of the humours is attributed to Hippocrates, he held much saner views on that subject than did many of his successors, a phenomenon which has repeated itself all too often during the intervening centuries. For in his treatise "On Ancient Medicine" he says, "Whoever having undertaken to speak or write on medicine, have first laid down for themselves some hypothesis to their argument, such as hot or cold, or moist or dry, or whatever else they choose (thus reducing their subject within a narrow compass and *supposing only one or two original causes of disease or of death among mankind*) are clearly mistaken in much that they say." (quoted by Walsh). Would that many modern masters of one-stringed medical fiddles would take a lesson from the Father of Medicine.

Let us pass to the great medical school of Salerno, which flourished in the twelth century. The history of this school has been very carefully investigated by De Renzi, whose researches are recorded in his *Storia della Medicina in Italia,* published at Naples. Apparently (to us) a surprisingly high standard of medical education was maintained at Salerno. Their curriculum demanded three years of pre-medical study at college, then four years of medical study, and finally a year's apprenticeship to a practising physician, with a further year of special study in anatomy in the case of anybody proposing to practice surgery. In this connection Professor Walsh makes the following significant comment: "We have had to climb back to these mediaeval standards of medical education in many countries in recent years, after a period of deterioration in which often the requirements for the physician's training for practice were ever so much lower." I hope to be able to show you how, just as we have had to climb back to the twelfth century Salernitan standards of medical education, in like fashion are we beginning to climb back to the recognition of a medical doctrine which that great school was instrumental in establishing throughout the middle ages—the Hippocratic doctrine of the different "temperaments" or "constitutions"—though of course in a form consistent with modern knowledge, to which we may apply the term, doctrine of different anatomical types.

It is unnecessary to recount here the history of the germ theory of disease. From our present point of view, the important fact for us to note is that with the establishment of this conception, the main interest of the profession, and especially of investigators, was largely

transferred from the patient to the germs and the disease. While the discovery of the micro-organismal cause of many pathogical processes and conditions of course resulted in inestimable benefit to medical science and to suffering humanity, on the other hand it has undoubtedly produced a tendency to seek the causes of disease entirely outside the patient, and to forget that "there is a patient who has the disease, as well as a disease which has the patient." Such count as is taken of the patient rarely has reference other than to his family history (i.e., his *hereditary* morbid predisposition), his occupapation, and one or two other points. It would appear that there are certain problems connected with human diseases to which bacteriology, morbid anatomy, and even clinical observation as commonly practiced have failed so far to furnish a complete and satisfactory solution. Let me mention one or two examples. Why do different individuals, resembling each other in a general way and existing in the same environment and under the same circumstances, suffer from different diseases? Why does one person develop phthisis and another heart disease, and why do some escape altogether? Why does the same disease, produced by the same type of organism (so far as we know) present in different patients different clinical manifestations, and different complications and sequelae? Why does the tubercle bacillus attack in one case the lungs, in another the kidney, and in a third the meninges? Why does tertiary syphilis affect in some cases the aorta, causing an aneurysm, in others a viscus, such as the liver, producing a gumma, and in yet others the central nervous system, leading to locomotor ataxia or general paralysis of the insane? Why in some cases of pernicious anaemia do nervous complications ensue, while in others the heart gives trouble? And why does a remedy which is highly efficient in one case remain impotent in another case of the same disease? This is a well-known phenomenon in the case of so-called "tonics," and people differ widely in their susceptibility to different purgatives. Every doctor is beset by a multitude of such problems.

Far be it from me to maintain that without doubt the solution of all such problems is to be found in the anatomical type of the person affected. The reason for such occurrences differs in individual cases. Such factors as environment, occupation, psychology, heredity and medical history (especially the latter) furnish the answer in many instances. The science of immunology has shed light in many dark places, and it is interesting to note that in this science certain attributes of *the patient* form the principal object of study. The object of this lecture, however, is to bring to your attention the possibility that the solution of many such problems may be reached by a study of the anatomical constitution or type of the patient.

Before discussing the work which has been done along these lines, it may be helpful to point out the relationship which is believed to exist between the anatomy of an individual and his pathological proclivities. This has been stated very clearly by Sir Auckland Geddes[5]. Certain external anatomical characters or combinations of characters are the outward signs or indicators of corresponding internal anatomical features, which, while in themselves perfectly normal to that individual, yet confer upon him a more or less definite and characteristic tendency or reaction towards certain diseases, to which the term *specific morbidity* has been applied. The chain then has three main links, (1) external anatomical characters; (2) internal anatomical characters, and (3) specific morbidity.

This is no new-fangled idea. We have seen it in its older form dominating the whole of ancient medicine. Even in its more modern form a surprising amount of work has been done along this line, but much of it has fallen into oblivion, and the value of much of it is as yet undetermined. This is due in some measure to the fact that some workers have endeavoured to correlate the incidence of certain diseases with *single* anatomical characters, for example stature or pigmentation, without sufficient regard to the anatomical *ensemble* of the patient. Others, on the contrary, have associated certain loosely defined anatomical types with certain individual diseases without establishing the relationship of these types to *other* diseases. We all have mental pictures, varying in clarity, of the type of person who, we think, might develop pulmonary tuberculosis, and of him who might drop off suddenly from heart failure; but to what

other diseases, if any, are these individuals liable?

Any classification of human types must recognize a central, theoretical, ideal, or average type, which contains relatively few individuals, since most of us vary somewhat from the theoretical type. The majority of people form a *graded* series on either side of this central average type, and while the extremes of these series can usually be recognized with ease, the less divergent members may not be so easily identified without the employment of special methods and criteria, the details of which we shall not discuss here, though as examples one may mention that De Giovanni[4] employs certain anthropometric measurements and proportions, while Bean[3] judges largely by the type of external ear. In general, then, we have a central average type, with a divergent type on either side of it. The average is, of course, characterized by certain theoretically ideal bodily proportions, good physiological functioning, and good health, or at any rate the absence of proclivities towards any particular disease or group of diseases.

The human body is recognized as consisting of the trunk and the two pairs of limbs, the term trunk including the head, neck, thorax and abdomen. It is obvious that the limbs are nothing more than servants of the trunk, to transport it from place to place, bring food and drink to it, and so forth, while the essential vital processes upon which the welfare of the body depends take place entirely within the trunk. So that from the point of view of the physiological well-being of the body we must realize that the trunk is vastly superior in importance to the limbs. On this basis the great French anthropologist Leon Manouvrier[6] distinguished three types of individuals, (1) the *Mesatiscelous* type, in whom the length of the legs and that of the trunk are well-balanced—this is the central or ideal type; (2) the *Brachyscelous* type, in whom the lower limbs are relatively short, and the trunk relatively preponderant, and (3) the *Macroscelous* type, in which the legs are long relatively to the trunk.

Bean's most recent terms for the two principal divergent types are *Hypermorph* and *Mesomorph*, while De Giovanni speaks significantly of the *First* and *Second Morphological Combinations*; the terms *Hypersthenic* and *Asthenic* are employed by Mills[8], and Stockard[13] uses the terms *Linear* and *Lateral*. We have, then, on one side of the central type a type to which the names macroscele, hypermorph, first morphological combination, asthenic, and linear type have been applied, and on the other side a type variously known as the brachyscele, mesomorph, second morphological combination, hypersthenic, and lateral type. For our present purpose we may regard these provisionally as being synonymous, and without doubt further work will justify us in this. My apology for inflicting so many synonyms upon you is that if you are to study the subject in the literature, you must be acquainted with them all for they are all in use.

Before proceeding to a discussion of the individual types, let us glance briefly at certain suggestions which have been put forward concerning the broader biological relationships of these types. While the influence of phylogeny in the production of the types is undoubted, Professor Stockard has made some exceedingly interesting suggestions as to certain other factors which may be at work. It is well known that the types of animals vary with the environment, and the same is almost certainly true of man. Stockard points out that, generally speaking, and with certain exceptions, the linear type predominates in maritime climates, such as England, where, owing to the proximity of the sea, there is a relative abundance of iodine in the environment, thus stimulating the thyroid, which affects the growth rate, and this in turn helps to determine the type. On the other hand, the lateral type predominates in continental climates, far removed from the sea, such as Central Europe, where the amount of iodine in the environment is less, and the thyroid is less active. On this theory the terms *High-thyroid* and *Low-thyroid* have been applied to the linear and lateral types respectively. These suggestions require confirmation and amplification, but they recall Goethe's, "Die Natur geht ihren Gang, und was uns als Ausnahme erscheint ist in der Regel"—("Nature pursues her course, and what we take for an exception is in accordance with law.") We are just beginning to perceive that these types are "in accordance with law," and to

study those laws to the operation of which their occurrence is due.

Professor Bean does not stress any modifications of the types with age, but most other authors differ from him in this respect. Stockard states that the types are most marked during the twenties, and that before and after that period the diagnosis of type requires more care. Mills grants that minor changes occur with the passing of time, and De Giovanni is strongly of the opinion that the type of morphology, as he calls it, undergoes modifications with age, and to this he attributes in part the different pathological proclivities at different ages. We have seen that the ancients believed that the constitution changed with age, and I think that it is the experience of most of us who observe our acquaintances from the point of view of their type, that, while the fundamental type may not change very greatly, yet considerable modifications do occur. With regard to sex, on the whole, women tend to be more brachyscelous than men, on account of the greater development of the lower part of the trunk, in conformity with their reproductive functions.[10] Stockard states that the types are usually less sharply marked in women than in men.

Professor Bean[2] offers the following embryological interpretation of the disease relationships of the two types. He designates structures developed from the ectoderm and from the entoderm "epithelial," using the term in that particular sense, in contrast to the term "mesodermal" or "mesothelial" which is applied to structures developed from the mesoderm. Bean has produced statistical evidence which seems to indicate that the Hypermorph shows a greater susceptibility to diseases affecting mainly "epithelial" structures, while the Mesomorph is more susceptible to affections of "mesothelial" structures. On this basis the terms *Epitheliopath* and *Mesotheliopath* (or *Mesodermopath*) have been applied to these two types.

In the interest of brevity we shall omit altogether a discussion of the central theoretical average type.

The essential anatomical characteristic of the brachyscele, mesomorph, hypersthenic, or lateral type is the preponderant development of the trunk as compared with the limbs. Since the vital organs upon which depends the physiological well-being of the body reside in the trunk, therefore we shall expect such a person with his preponderant trunk to have these organs better developed than an individual of the other type, and consequently to be more vigorous, and such is usually the case. We have seen that the ancients recognized various types of mentality, corresponding to the different bodily constitutions, and I cannot forbear quoting Montessori's[10] amusing, and, I hope, exaggerated description of the type which we are considering at the moment. "The great development of the abdominal organs tends to make a person of this type a hearty eater, a man addicted to all the pleasure of the table; his big heart, abundantly irrigating the body, keeps his complexion constantly highly coloured, if not plethoric. We can almost see this man of big paunch, corpulent, with an ample chest, fat, ruddy, coarse and jolly; an excess of nutriment and of blood-supply are favourable to the ready accumulation of adipose tissue, and as the body constantly grows heavier it steadily becomes more difficult for the undersized legs to support it; so that inevitably this man will tend to become sedentary, and he will select a well-spread table as his favourite spot for lingering. Whatever elements of the ideal this world contains, will escape the attention of this type of man, who is far more ready to understand and engage in commerce, which leads by a practical way to the solution of the material problems of life." This type tends to be short and thick-set, often stout. According to the usual fallacious method of comparing a man's weight with his stature by the employment of empirical tables, he is commonly over weight. His limbs and neck are short and thick, his hands and feet often large. His thorax is short vertically as compared with his abdomen, but it is broad and deep, with an ample circumference, and a wide outlet. His ribs approach the horizontal, his subcostal angle is widely open, his thoracic capacity is large and his chest expansion good. In conformity with his capacious chest, his heart is large, its long axis approaches the transverse, it is situated high up in the thorax, and has plenty of space in which to function energetically. From a functional point of view it is interesting to note that the left heart has been stated to be

relatively better developed than in the other type. As a result of this his circulation is good, with a high blood pressure, and on that account he is commonly of a ruddy or plethoric countenance. The arteries and veins are stated by Bean to be thick and inelastic, and liable to sclerosis at a relatively early age. The excursions of the diaphragm are extensive, and on this account, together with the large chest capacity and expansion, the respiratory function is performed as satisfactorily as is the circulation, and so the blood not only circulates vigorously, but is well oxygenated in addition.

The abdomen in this type is well developed, being longer vertically than the thorax, and usually tending towards protuberance.

The large size of the thoracic outlet allows of a large, high-lying, transverse liver, extending well over to the left side. For the same reason the stomach is enabled to lie high up, and, like the heart and liver, its long axis approaches the transverse. This is the type in which we find the so-called "cow-horn stomach." One very important point to notice is that the pylorus lies very little higher than the lowest point of the stomach, so that emptying is not in any way retarded by gravity. The pylorus also tends to lie to the right of the mid-line. On this account, and because of its transverse lie and high tonicity, the stomach empties itself readily.

The intestines on the whole are well developed, but Bean has made the interesting observation that in this type the small intestine is longer and the large intestine shorter than in the average type. This means a high development of the absorbing portion of the gut with consequent good assimilation and nutrition, which is aided by the efficient circulation. Such a person is therefore usually well nourished, with an ample reserve of adipose, in addition to a well developed musculature. Owing to the preponderance of the absorptive small intestine, in which, from its very length, the food must remain for some considerable time, it has been suggested that these people should feed mainly on a diet which is bulky and not over nutritious and concentrated, in fact, that they should lean towards vegetarianism; indeed, on that account this type has been called the *Herbivorous Type*; and much of the plethora to which these people are liable is attributed to over-nourishment from a diet containing too much meat and other concentrated nutriment, to which their type of intestine is not adapted.

The transverse colon is short and straight, and lies high up, and ascending and descending mesocola and other congenital peritoneal bands are uncommon. There is thus no marked tendency to enterostasis or other alimentary disturbances, nor to visceroptosis. In conformity with their well nourished condition, the extraperitoneal fat is abundant, and this protects the nerves from irritation by the movements of the abdominal viscera. The abundance of this fat around the kidney, together with the good tone of the abdominal musculature, renders nephroptosis uncommon.

The great mesodermal systems, the cardiovascular system and the kidneys seem to be especially prone to disease in this type. We have traced the origin of the plethora to which this type is subject, and this plethora seems to throw a strain on these systems which they can ill withstand. This type therefore is peculiarly liable to such affections as heart disease, chronic nephritis, arteriosclerosis, aneurysm and apoplexy. Bean has found that the majority of these people die between the ages of forty and sixty, because it is at this age period that these diseases to which they are most liable work their greatest havoc.

The macroscele, hypermorph, asthenic, or linear type is characterized by a tendency to an undue development of the limbs. The trunk and its contents are therefore relatively under-developed, with consequent deficiency of vigor. Again let me quote Montessori: "Such a man feels, even though unconsciously, that the abdominal organs are incapable of assimilating sufficient nutriment, and that his lungs, unable to take in the needed quantity of oxygen, render his breathing laborious. His small heart is inadequate for circulating the blood through the whole body, which consequently retains an habitual pallor; while the nervous system is in a constant state of excitation. We can almost see this man, so tall and thin that he seems to be walking on stilts, with pallid, hollow cheeks and narrow chest, suffering from lack of appetite and from melancholia; nervous, incapable of steady productive work and prone to dream over empty visions of poetry and art.

The man of this type is quite likely to devote his entire life to a platonic love, or to conceive the idea of crowning an ideal love by commiting suicide."

This man tends to be slender, with long limbs and neck. He is frequently under weight, according to our usual standards. His thorax is long, narrow and shallow, with a small circumference and outlet. His shoulders tend to be high and angular, with prominent scapulae. He may be "round shouldered." His ribs are set very obliquely, his subcostal angle is narrow, and his chest capacity and expansion poor, as are the excursions of his diaphragm. Therefore the expansion of his lungs and the oxygenation of his blood are poor, and along with the deficient lung expansion there is a degree of stagnation of the pulmonary circulation. The heart is small, its long axis approaches the vertical, and on account of the poor chest capacity, it is situated rather low down, and is somewhat cramped for room. The heart is thus below par, and the circulation is poor, with a low blood pressure and poorly oxygenated blood. He is therefore usually pale and anaemic looking, often of a sallow or "muddy" complexion. Bean states that the vessels are thin and elastic, and become sclerosed only in old age.

Sir Auckland Geddes has suggested certain effects of stagnation of the pulmonary circulation. The right heart is hypertrophied to overcome the stagnation. The pressure in the pulmonary artery and its branches is raised, and this causes distension of these vessels, which press upon the peri-vascular lymphatics, thus interfering with the lymphatic circulation in the lung. Almost certainly this impeded lymphatic circulation in the lung favours the invasion of that organ by the tubercle bacillus, a process to which this type of individual is all too prone.

The increased pressure in the pulmonary circulation affects the right heart, as we have seen, and this in turn tells back on the venous system, in which the circulation tends to stagnate, with the production of prominent blue veins (the blood being poorly oxygenated). both Sir Auckland Geddes and De Giovanni (independently) regard prominent blue veins in the thoracic wall as an external anatomical mark of an internal anatomical constitution which definitely predisposes towards consumption. A further result of this tendency towards venous congestion is a disturbance of the cellular biochemistry of such an individual, with detrimental effects upon his nutrition, trophic functions, vigor and resistance.

It must be remembered, too, that by means of the thoracic and right lymphatic ducts all the lymph in the body drains ultimately into the venous system, and that therefore a rise in the intravenous pressure will affect the general lymphatic circulation, and cause stagnation there. On this account it is children of this type who suffer most from tabes mesenterica, cervical lymphadenitis, enlarged tonsils and adenoids.

The abdomen is short vertically, but the pelvis is wide. Owing to the small thoracic outlet, the liver is low-lying, with a vertical inclination, and keeps mainly to the right side. For the same reason the stomach is low-lying, often below the umbilicus, vertical, and lying strictly to the left side, though on lying down it may rise somewhat and the pylorus may move to the right. The stomach is commonly J-shaped, — the "fish-hook stomach" — and the important point to note here is that the lowest part of the stomach lies some considerable distance below the pylorus, so that the stomach is under the necessity of emptying itself against gravity. The stomach is markedly atonic, and this, together with the position of the pylorus just mentioned makes complete emptying a matter of some difficulty, and one which is often imperfectly performed.

Professor Bean has found that in this type the small intestine is unusually short, while the large intestine is very long. Because of the shortness of the absorptive small intestine, the food does not take so long to pass through it as in the other type, and therefore assimilation of nutriment is not so good. On this account, together with the poor circulatory conditions, the general nutrition of these people is below par; they are thin, their musculature is poor, and their trophic functions are anything but vigorous. Generally speaking, they tend to be weakly and delicate. It has been suggested that these people should live on a well-cooked and highly nutritious diet, in order that the maximum amount of absorption may take place during the brief period which the food passes within the small intestine. Such people should eat plenty of meat, eggs, milk, etc., in fact

this type has been called the *Carnivorous Type*, and many of the digestive disorders to which they are so liable result from the ingestion of bulky vegetable foods, leaving a large residue, for which their type of intestine is not adapted, and which help to produce enterostasis.

The large intestine, as we have seen, is long. Therefore the transverse colon hangs in the form of a long U-shaped loop between the two colic flexures, the apex of the loop often reaching down into the pelvis. The right colic flexure is low-lying, but the left colic flexure, having the additional supporting mechanism of the phrenico-colic ligament, usually remains at or near its proper level. The pelvic colon is long. It will be noticed that in this type there are a number of places where food has to be forced uphill against gravity. This we have seen to be the case at the pyloric end of the stomach. We have seen how markedly the small intestine sags down in the pelvis; the food has thus to be forced up over the brim of the pelvis into the caecum. Then it has a short climb up through the ascending colon to the low-lying right colic flexure; next it passes down the descending limb of the transverse colon; and then it has a terrific climb up to the left colic flexure. It may also have somewhat of a climb in the terminal part of the pelvic colon. The intestinal anatomy of this type is thus seen to favour enterostasis, with all its consequences. In this type, too, there is stated to be a greater prevalence of ascending and descending mesocola and of other congenital peritoneal bands, such as Jackson's membrane. In conformity with the general poor nutrition, the extra-peritoneal fat is scanty, and this favours a sliding down of the parietal peritoneum. These factors, together with the poor tone of the abdominal muscles, and the low position of the abdominal viscera generally which is normal to this type, all tend to render these people especially liable to the condition of visceroptosis, including nephroptosis. The paucity of extraperitoneal fat is also stated to expose the nerves to irritation by the movement of the abdominal viscera, and it is thought that stimulation of the sympathetic filaments by this means may lead to inhibition of peristalsis, with consequent aggravation of any stasis which may exist.

This type has been shown to be especially susceptible to diseases of the "epithelial" structures, the alimentary canal and its derivatives, especially the respiratory system, and the nervous system. Consumption is their great scourge. The death rate of this type is highest between the ages of twenty and forty, because this is the age period at which tuberculosis works its greatest havoc.

You will observe that I am speaking in generalities, rather than adducing detailed evidence. I am fully conscious of my omissions. Other types have been described of which I have made no mention, in the interest of clarity, and other diseases than those mentioned have been associated with the types which we have considered. Especially have I omitted all description of those anatomical features which are employed in the diagnosis of the types, preferring to dwell upon a few of those which can be shown clearly to be of importance in connection with their relationship to disease, and if I have succeeded in drawing your attention to the fact that a person's anatomy is of considerable importance from the point of view of his morbidity, and in arousing some interest in the subject, I shall have attained my object. For the purpose of emphasis I have described the *extremes* of the two divergent types. In practice you will find as few individuals corresponding in all points to the account which I have given as you will find conforming to the ideal type. There are innumerable species of gradations and modifications, and the successful diagnosis of the type of any given individual requires considerable study and practice, and certain special methods. (Information concerning these will be found in certain of the references listed at the end). It is to be remembered that these anatomical peculiarities do not constitute disease, but merely a predisposition towards disease. For example, as Le Wald pointed out in the discussion on Mills' paper, one would not attempt to apply surgical treatment to a visceroptosis unless it were giving rise to symptoms.

Obviously a great deal of further work is required along this line. What of its applications? (a) In the first place, more detailed information, and a clear recognition of the importance of the *patient* in the production of diseased conditions, will lead to a broader and

more thorough understanding of etiology, with all that that implies. (b) Considerable light promises to be shed upon pathological proclivities and manifestations at different ages. Professor Oertel and his pupils have been working along this line.[11] (c) An appreciation of the type of the patient and of its significance will aid somewhat in diagnoses. (d) The solution of certain therapeutical problems will probably be found to lie here. (e) We shall know, with far greater accuracy than at present, the complications to which any given patient is especially liable and precautions may be taken accordingly. (f) But it is in the realm of preventive medicine that the best results are to be looked for. This has been stressed by a number of writers. We have seen the susceptibility of the type of environmental influences. When each individual shall know his type and his specific morbidity with greater accuracy than at present, he will then be in a position, in a reasonable and sensible way, without becoming a crank, so to modify his environment as regards diet, exercise, occupation and other matters, that, although he may not be able to alter his fundamental morphological type, yet he may be able to counteract his morbid tendencies to a far greater degree than is possible at present. This will be of especial value in the case of children. But, lest we yield to the temptation to become over-enthusiastic about such a matter as this, and to push it too far, let us remind ourselves continually of Hippocrates' warning against narrowing our horizon, and "supposing only one or two original causes of disease or of death among mankind."

The concluding sentence of Professor Miall's presidential address to Section D. of the British Association for the Advancement of Science at Toronto in August, 1897, so exactly expresses my own feelings that I cannot do better than quote it:—"Except where the urgent need of brevity has for the moment been too much for scientific caution, I trust that you will find nothing that is dogmatic or over-confident in my remarks."[7]

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Since the above lecture was delivered the following interesting article has appeared: "Human Constitution: Clinical Anthropometry," by G. Draper, H. L. Dunn and D. Seegal, *Jour. Amer. Med., Ass.*, Feb. 9, 1924, p. 431.

Public Health Research.—It is our function, says A. M. Stimson, Washington, D.C., to follow the trail of disease wherever it leads, and to do battle with the enemy wherever encountered. If the chief cause of disease is poverty, then the proper field of public health research for this disease is in the realm of economics. If ignorance is the chief stumbling block, let us study education. If outworn forms of civic organizations stand in our way, let us learn how to build better ones. But whatever our problems prove to be, we should not expect success to follow a hit-or-miss system of attack. Research should be systematic, and should closely follow the principles that have produced in their application such notable advances in the so-called physical sciences. Now and then a voice is heard protesting that research has already so far outstripped practice, that it should be restricted rather than encouraged until practice has caught up. This is the weightiest argument in favor of further research; for, until investigation has shown exactly how to put knowledge into practice, it has fallen short of complete service, and should be pushed further, no matter what unfamilar fields it leads us into.—*Jour. Am. Med. Ass.*, Aug. 2, 1924.

COMPOUND FRACTURES

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IN considering the question of fractures in general, it is necessary to bear in mind that other important structures besides bone may be damaged. Sometimes, indeed, as in skull fractures, the bone injury is entirely negligible, and in fractures of the extremities the damage to the main vessels or nerves is at times the all important factor, while if the fracture is compound the problem is further complicated by the possibility of ensuing infection with all its dangerous sequelae.

There are two possible ways in which a compound fracture may be produced. The force may come from without and directly fracture the bone, or a broken end may perforate the skin from within. A gun-shot wound is an example of the former, while the latter is exemplified by the case of a protruding femur after a fall in which the individual alighted on his feet. This distinction is a very important one, having a bearing both on the end-results and treatment, since other results being equal, infection is more apt to ensue in those instances where there has been penetration from without. The reason for this is simple. When the skin and soft tissues are opened up by the bone from within, they are torn asunder by a sterile object, while in the case of destruction by an outside force, infective material is very liable to be deposited anywhere along the track, and in the case of bone splintering by a bullet the various spicules are possibly infected, and these act as a further distributor of septic material.

The symptomatology of compound fractures is so varied as to render any description futile, and in any case, the diagnosis is usually obvious. It is well to remember, however, that a break in the skin near fracture does not always mean that we are dealing with a compound fracture.

In the treatment of compound fractures of the extremities there are two phases,—first aid, and what might be called the deliberative treatment. If the patient is bleeding when first seen the haemorrhage must be stopped, and this is most readily done by pressure on the main vessel, first by the hand and then by tourniquet. If there is much pallor of the face there is very likely considerable shock, and a quarter of a grain of morphine with one one-hundred and fiftieth of atropine should be administered. Sufficient clothing should now be cut away to expose the wound, which after a brief inspection should be covered by some sterile gauze and bandaged without disturbing the fragments. Then place the injured limb in a temporary splint, and as far as possible fasten the limb to the splint without any attempt to reduce the fragment. In other words if the end of a bone is projecting a couple of inches don't attempt to put it back, but fix the leg in the position in which you find it, and send the patient to hospital in an ambulance.

Having arrived at the hospital the more deliberate procedure may be adopted, and the first consideration should be given to the general condition of the patient. The blood-pressure should be taken and the pulse, and in this connection I wish to point out that the blood pressure is a much more reliable criterion of the patient than feeling the pulse, no matter how expert the examiner may feel he is. Moreover, the pulse rate is not necessarily a satisfactory guide, for a patient may have a pulse rate of seventy and a pressure which fails to register in the arm, so that the only reliable method of determinating the degree of shock is to measure the systolic and diastolic pressure. If the systolic pressure in an adult is much below 100 he should receive appropriate treatment for shock, and be given 20 - 30 oz. of saline interstitially and kept warm, preferably by placing him on an electrically heated table.

With the general condition attended to a more detailed examination should be made. Look for other injuries. He may have a rupture of the intestine or other very serious injury which would render the fracture of very

secondary importance. Having satisfied yourself as to other injuries, direct your attention to the injured limb below the line of fracture, with a view of determining whether there has been nerve or vessel injury. If the radial or tibial pulse is present there has been no serious vessel damage, while if there is no loss of sensation, and if he can still even feebly move the fingers and toes, there has been no damage to important nerves. But we must not be misled, however, by muscular movements. For example, a man might have a severed median nerve from a compound fracture of the lower end of the radius and still be able to perform most of the finger and thumb movements because the muscles which perform such movements receive their supply higher up. But he would not be able to abduct the thumb, that is raise it at right angles from the palm, which is the real test for severed median at the wrist. Similarly, if there is inability to separate and bring together the fingers there has been an ulnar nerve lesion.

An anaesthetic should now be administered, and when completely under, the temporary splint and the necessary clothing and bandage removed. The surrounding skin is shaved, washed away from the wound with gasolene, then ether and painted with 2½% iodine. The original gauze dressing is now removed and the wound, including the protruding bone, is likewise treated with gasolene, ether and the same strength of iodine. At this stage the wound area is draped as for a major operation, and surgeon and assistant provided with the usual equipment. Provided there is no indication for amputation, now is the time to remove the tourniquet and reduce the fracture, making search where feasible for any foreign material which may be lying underneath the protruding fragment. Again the wound is flushed in succession with gasolene, ether and 2½% iodine, after which all obviously damaged tissue is cut away, paying particular attention to any muscle which has lost its blood supply, inasmuch as gas gangrene is known to arise in dead muscle. In other words, excise the wound as far as is feasible.

Having obtained what we have reason to believe is a sterile field, the next consideration is the fracture itself. If there is reason to believe that the fixation apparatus which you propose to employ will hold the fragments in place, then there is nothing further to do than arrest the haemorrhage and suture the wound, either in layers or with interrupted silk-worm gut, making sure that no pockets are left wherein blood and serum may collect. No drainage is necessary other than that provided by interrupted skin sutures. A dry dressing with a thick pad is placed over the wound and the retention splint applied, and the patient is returned to bed. But if there be any doubt about the ability of your splinting to retain the fragments in proper alignment and the full length, then some form of internal splint should be put on when feasible, and this is best accomplished by fixation with kangaroo tendon inserted through appropriate drill holes. If the fracture is oblique, as many of them are, then the direction in which the fragments tend to slip is noted and the holes so placed that the pull will be as far as possible in the opposite direction, and not at right angles to that direction. If the fracture is transverse two converging drill holes are made —in the cortex only—of each fragment and so arranged that the four channels meet at the same spot. Kangaroo tendon is then threaded through one channel of the proximal fragment and back through the other channel of the same fragment. The same is done with the distal fragment, except that the sutures are interlocked. They are then tied with a double knot in the usual way and the wound closed. As a routine measure one thousand five hundred units of anti-tetanus serum are administered hypodermically.

The question arises, what should be done in the presence of comminuted fragments. So long as they retain connection through the periosteum they should be left, and this is true also of those which are free, except when a foreign substance like clothing is lying in their midst, when, unless they are large, they should be removed for fear of infection. There is another determining factor, and that is the depth at which the loose pieces lie, inasmuch as those near the surface are apt to give trouble, while those deep in the wound are not.

The type of case thus far dealt with represents that which is commonly met with in civil life, but there are all grades of severity. Not uncommonly we see patients in whom a sharp

fragment has made a small puncture wound of the skin and been immediately withdrawn. All that is necessary in such a case is to paint the wound with 2½% iodine, excise the margin and suture, after which the case is treated as a simple fracture, and carefully watched for evidence of infection.

Against this type we have the class of cases in which there has been extensive damage to the soft parts, including loss of large areas of skin and in which the question of amputation has to be considered. Such injuries are usually due to an outside force, either from a gun-shot wound common in warefare, and occasionally in civil life, or from a severe crush. In such instances the fracture becomes of secondary importance, and it requires rare surgical judgment to determine the proper course to pursue, and each case must be decided on the particular findings. There are, however, certain definite indications for immediate amputation, always provided that the patient is in a condition to withstand the operaton. If the main vessels are torn, resulting in loss of any pulsation below, and if at the same time an important nerve is divided, then there is nothing to be gained by waiting. Even though the nerves are not divided, if there is loss of pulsation and great pulping of the soft tissues, immediate amputation should be done because pulped tissues will not withstand infection, and leaving the limb on will seriously endanger the man's life. In certain areas extensive loss of skin alone will determine the necessity for amputation. For example, if a man have a fracture of the proximal phalanx of a finger with loss of the skin covering the two distal phalanges, there is nothing to do but amputate, not for fear of sepsis, but because it would be weeks or months before the finger would heal,—if it ever did so, and at the end of that time it would be quite functionless. Therefore, the end result even under the best condition has to be taken into consideration in arriving at any decision. It is even necessary to differentiate between injury to important nerves. If for instance the great sciatic were severed in the presence of great comminution of the femur, even though the main vessels are intact, it is at least debatable whether, in view of the long treatment and consequent loss of earning power, amputation is not the best procedure even in a young adult. But if a similar condition existed in the arm and the musculo-spiral nerve was severed, then amputation should not be entertained, since if regeneration failed tendon transplantation is an excellent substitute. This comparison suggests another factor. The hand is of much greater importance than the foot, so that the same conservatism which guides one in dealing with the upper extremity does not hold when the lower extremity is the seat of disease. Moreover, it is well known that artificial limbs are eminently satisfactory for the leg, and almost useless for the hand, Age and concommitant disease influence one's judgment inasmuch as the infirm do not withstand infection as well as the strong. If the fracture be further complicated by involvement of a joint or important tendon sheaths like those on the flexor surface of the fingers, the proper procedure is made increasingly difficult. Obviously if an important joint is disorganized the injury has been a very severe one, and such might easily be the means of deciding in favour of amputation, but in the less severe cases if sepsis can be reasonably controlled conservative treatment is best. Fissures leading into a joint are of two varieties, the closed and open. The latter are the more dangerous in that they quickly become filled with blood clot which forms a good culture medium should the wound become infected. While not usually done, it would in many cases save much time to do a primary amputation in a badly comminuted fracture of a finger where the sheath has been opened into, for with conservative treatment few, indeed, have a finger with any useful function in the two distal joints because of adhesions between the tendon and its sheath. If there is not enough skin to close the wound and amputation has been rejected, the new surface is covered with sterile gauze. Where a nerve is divided and conservatism is adopted the ends are trimmed with a sharp scalpel and sutured with fine catgut, which does not go deeper than the sheath. If a segment of nerve has disappeared, the proximal portion must be mobilized to allow the ends to come together without tension. Flexing a joint or where feasible bringing the nerve in front instead of behind a joint as at the elbow may allow approximation of the ends. Unless the ends can be united, it is useless to attempt bridging the

gap by the many devices which have been from time to time tried.

Vessel suture is not a success. From the experimental standpoint it promised much, but thrombosis occurs, and if sepsis supervenes, secondary haemorrhage is more liable to follow, so that where the limb is left on there is nothing to do but ligature the vessels.

A rise of two or three points in the temperature for a few days following the operation is not unusual, and provided the patient looks well and is not suffering much pain and the foot or hand is in good condition it is not of any special significance. Should sepsis occur, however, the wound must be inspected and drainage instituted. If at this time there is evidence of gas gangrene as indicated by a sanguineous discharge of characteristic odour and the presence of gas in the wound or the tissues about, amputation must be performed at once. Even apart from gas gangrene, amputation may have to be carried out on account of a severe grade of sepsis in order to save the individual's life.

Fixation of the fracture is even more important in compound fractures than in simple. Movement between the fragments means added traumatism not to the bone only, but what is more important, to the soft tissues, with a resultant loss of resistance to infection, and if the full length of the limb is not restored, pocketing is bound is ensue with increased danger of infection. For the femur the best fixation apparatus is the Thomas splint with extension and suspension by means of the Balkan frame. For the tibia plaster of Paris applied from the toes to high up on the thigh with a window is most satisfactory. The knee should be well flexed nearly to a right angle, and so long as the fracture does not involve the ankle joint, the foot is allowed to drop into the position of rest. In this way the Tendon Achilles, which is the chief cause of the tendency to shortening, is put at rest. At the end of three weeks if things are progressing satisfactorily, a new cast is put on with the knee slightly flexed and the foot at right angles. If the fracture is near the ankle or involves it then the foot must be put at right angles, unless such a position causes bad alignment in which case the foot is dropped for a period of about two weeks, and then brought to a right angle. For the humerus the ideal is the Wilson splint by means of which the arm rests in a cradle attached to the chest by means of plaster. The patient is free to go about, and the dressings can be changed with a minimal disturbance of the fragments. The same splint is ideal for compound fracture of the forearm, especially where both bones are broken and the hand can be held in either pronation or supination. For fractures of the metacarpals or phalanges the best plan is to incorporate a bent wire in plaster about the forearm and obtain extrusion to the wire as it turns over the ends of the fingers. By observing with the fluoroscope you can bend the wire into the position in which the best alignment is obtained.

A late sequel to compound fractures is nonunion, especially in the tibia where the majority of such fractures occur. The usual method of procedure in such instances is to wait for a considerable time, certainly not less than six months after the wound has healed, until the danger of lighting up the infection has passed, and then put in an autogenous graft. This entails the loss of a great deal of time and there is always the possibility of failing to get union. Personally, I do not hesitate in the case of the tibia to open up a wound which has not yet healed and with a flat chisel split each end into numerous longitudinal pieces, and again close the wound to its original size. I have done this on several occasions now, and in each instance union has occurred, and there has been no ill effect in any of them.

A Precipitin Reaction of the Digestive Mucosa of the Dog.—The results reported by Ludvig Hektoen and Kamil Schulhof, Chicago, indicate that in the dog, the mucosa of the stomach, the ileum and the colon contains at least one common antigenic substance that is distinct from the proteins of dog serum. Whether the mucosa in different parts of the gastro-intestinal canal contains still other and different antigenic substances, as well may be expected, cannot be determined by the facts at hand. It seems probable that studies of the digestive tract and of the digestive process with the precipitin and other immunologic methods will prove of interest and value.—*Jour. Am. Med. Ass.*, Oct. 25, 1924.

PRIMARY ULCERATIVE COLITIS*

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HISTORY.—The study of primary ulcerative colitis may be said to have originated with the writings of Sir Samuel Wilks, who in 1859 first suggested that this condition was distinct from epidemic tropical dysentery and held the view that the cases as they occurred in England were due to a non-specific ulceration of the colon. This opinion was later supported by Hale-White, who, in 1888 published a report on eight cases that had died from this disease, and who is accredited with first having adequately described its pathology and symptomatology.

Shiga in 1897 discovered the *Bacillus dysenteriae* during an investigation of epidemic diarrhoea in Japan. This was soon followed by similar observations in other countries. Vedder and Duval[1] in America (1902), and Eyre[2] in England (1904), demonstrated the presence of this specific organism in epidemics of asylum dysentery. The first reference that I have been able to find reporting the isolation of this organism in a sporadic case is that of Saundby[3] in 1906. The bacteriological study carried out in this case by Hewetson revealed a "bacillus which was almost pure and identical with that of Shiga." The patient had never been away from England.

Hawkins[4] in 1909 reported eighty-five cases of ulcerative colitis of varying types. He held the view that all these cases were primarily caused by the *Bacillus dysenteriae* of Shiga.

With the introduction of the sigmoidoscope the ante-mortem study of colon pathology entered upon a new phase. In 1910 Lockhart Mummery[5] published the results of his observations with this instrument in ulcerative colitis and since then sigmoidoscopy has done more to advance our knowledge than any other single procedure.

Lately the assistance of the x-ray in determining the extent and severity of the lesions has been of great value.

Bacteriology.—Rolleston[6] states that "bacteriologically ulcerative colitis is not a specific disease for numerous organisms, *Bacillus coli*, coliform organisms, *Bacillus pyocyaneus*, pneumococci, and streptococci may appear to be the predominating and causal agents," and furthermore, "that ulcerative colitis is not a disease in the strict sense of the word any more than rhinitis or bronchitis is, but it is a syndrome with fairly constant clinical manifestations and anatomical changes." While this is a good clinical dictum for practical purposes, there is a good deal of bacteriological evidence pointing to a specific causal agent.

The *Bacillus dysenteriae* is almost universal in distribution and there is the very obvious possibility that sporadic cases overlooked in their acute or early stage may subsequently develop a chronic ulcerative condition due to the invasion of secondary pyogenic organisms. The primary infection serves to lower the local and general resistance of the patient, the *Bacilli dysenteriae* eventually becoming outnumbered by the more common intestinal bacteria, which render their recognition extremely difficult. There is the statement of writers on tropical diseases that the symptoms and pathological changes of amoebic and bacillary dysentery may recur and persist for a long time after the specific organisms have disappeared from the stool. Saundby and Miller[7] have reported a case of amoebic dysentery with typical ulcerations of the colon and a large single abscess of the liver in a case that had never been away from the Birmingham district. These cases of sporadic amoebic dysentery must be exceedingly rare and can only be ascribed to the presence of chronic carriers. Apart from these rare cases of amoebic infection, I believe there is sufficient evidence to warrant the opinion that all cases are primarily bacillary dysentery.

Judging from the bacteriological reports received the secondary infective organisms are chiefly the *Bacillus coli*, the *Streptococcus*

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fecalis and the *Diplococcus pneumoniae*. One of our cases showed diplococci resembling the pneumococcus in almost pure culture. The case was acute and characterized by profuse bleeding and high temperature. There was no pulmonary infection. Lockhart Mummery[8] has reported two similar cases.

In dealing with ulcerations of the colon no matter whether the underlying cause is tuberculosis or the condition under consideration, we must conclude that we are ultimately dealing with a "mixed infection." The symptoms and pathological changes are to a great extent due to this secondary infection, and to the toxaemia caused by it.

Etiology.—Ulcerative colitis usually occurs during early adult life. Yeomans'[9] series shows the age incidence varying from sixteen to sixty-six years. Helmholz[10] in a paper delivered at the annual meeting of the American Pediatric Society this year reported a series of five cases of primary ulcerative colitis of unknown etiology in children of eight to ten years of age. Females seem more frequently affected than males.

In these cases of true primary ulcerative colitis, I have not been able to elicit anything from their history, which could be rightly called a predisposing factor. They invariably state that they have been enjoying good health until stricken with this malady. However, in spite of their statements to the contrary, I am inclined to believe that some at least, due to stress of circumstances were living in conditions of prolonged under-nourishment.

McCarrison[11] has shown that healthy monkeys, carriers of *Entamoeba histolytica* when fed on a diet low in the vitamine content developed amoebic dysentery. This illustrates very well how a diet deficient in these accessory food factors can lower the resistance of the body and predispose to disease.

Pathology.—The characteristic pathological feature in the cases I have seen has been the presence of numerous superficial ulcers, or erosions, irregular in outline. They bleed freely on being touched. These erosions are small and distinct at first, but later coalesce to form large areas of ulceration with narrow islands of mucous membrane separating them. The intervening mucosa becomes injected and oedematous. The ulcerative process does not as a rule extend beyond the mucosa but microscopically the sub-mucosa and muscular layers will be found oedematous and infiltrated with leucocytes.

The first row of lymph nodes are slightly enlarged, and it is quite possible that under certain conditions they suppurate and give rise to an acute and fatal peritonitis. Jones[12] has removed one of these glands in each case coming to operation, and only once has the tubercle bacillus been found.

Another important feature is the widespread distribution of ulceration. It is not localized to one or two segments, but usually affects the entire colon from the caecum to the rectum, the pelvic colon, however, is chiefly involved. The ileum is rarely ulcerated. In severe cases the mucosa may be almost completely destroyed and the inner raw surface of the bowel roughened by the deposition of fibrin. At operation one finds the bowel thickened and stiffened and the capillaries over the ulcerated areas dilated.

The complications which may develop are stricture, perforation, arthritis, nephritis, liver abscess, and malignancy. One of our cases developed acute obstruction of the bowels due to a carcinomatous stricture at the splenic flexure seventeen years after the onset of the ulcerative process.

Symptomatology.—Diarrhoea is the chief symptom by which we are directed to investigate the large bowel in ulcerative colitis; in mild cases it may be the only symptom. This diarrhoea depends on three factors: hyperperistalsis, hypersecretion, and diminished absorption of the water content. The amount of water in the normal stool is approximately 70%, while in various forms of diarrhoea it may be as high as 95%. The number of stools vary from three to as many as twenty per day. Our most severe case had practically continuous diarrhoea, with complete relaxation of the anal sphincter. This patient was almost moribund on admission to hospital, but recovered under active treatment. One patient complained that whenever she took food the bowels moved; this might be spoken of as an exaggerated gastro-colic reflex.

Pain is a variable symptom and may be either continuous or paroxysmal in character. Abdominal pain apart from a complication is

not severe. A discomfort is complained of more often than pain. Tenesmus, especially in severe cases is often a marked symptom. This is due to the involvement of the rectum in the ulcerative process, and to the inflamed and irritated condition of the anal canal.

Tenderness along the colon, especially the pelvic colon is sometimes present, and is probably due to an associated peri-colitis. In the earlier stages of the disease, and in the intermittent cases, general nutrition may be little affected, while as the ulceration of the colon progresses, there is marked emaciation and pronounced anaemia. One of our cases had lost seventy pounds in eighteen months. Asthenia is proportionate to the loss of weight and anaemia present. There is usually a slight leucocytosis. The temperature during acute exacerbations is often above 101° F. but in the more chronic phase, the temperature is sometimes sub-normal, and rarely over 100°. Anorexia is a late symptom, most patients having a good appetite in the earlier stages. When loss of appetite occurs, it must depend upon the degree of toxaemia present in some cases, and in others on the amount of gastric retention due to reflex spasticity of the pylorus. The tongue is commonly coated with a dark brown fur.

Diagnosis.—The *history* in these cases usually dates back for months, and in some instances for many years. The onset may be sudden and acute, or very gradual but persistent. In others there have been variable periods of freedom from symptoms only to be followed by a more severe attack of diarrhoea. The majority of the cases have not travelled abroad, although one of our series had lived in Japan and another in France during the war.

There is one characteristic feature in the *physical examination* of the abdomen in chronic progressive cases, which I believe is important. It is the retracted or scaphoid abdomen. This absence of distension is due to the fact that the ileum is so rarely affected. Marked abdominal tenderness and rigidity suggests perforation with localized peritonitis. The chest should always be examined to exclude pulmonary tuberculosis, as this has a direct bearing on the differential diagnosis.

The *examination of the faeces* should be undertaken as early in the disease as possible. The outstanding feature in ulcerative colitis is the passage of pus, blood, and mucus in every stool. Where the lower part of the sigmoid and rectum are alone involved, some of the stools may consist entirely of these elements. During the periods of remissions, these may not be obvious to the naked eye, but can always be detected on microscopic examination. The blood is bright red in colour. The amount of pus varies with the extent and severity of the ulcerative process. The stool is usually fluid, but not watery in character.

In addition to the naked eye and microscopic examination of the faeces, a careful *bacteriological investigation* should always be instituted. The stool should be sent to the laboratory in as fresh a state as possible. Still better, is the examination of scrapings made directly from the ulcer surfaces, through the rectal speculum or sigmoidoscope. We must not be satisfied with one bacteriological report.

By far the most important evidence in arriving at a correct diagnosis in these cases is obtained by the use of the *sigmoidoscope*. Where the anal canal is greatly irritated a pledget of cotton impregnated with 5% cocaine solution can be left in the canal for a few minutes. The examination should be conducted without pain. When gently and carefully done there is no danger of injury to the bowel by its manipulation. With the sigmoidoscope we can exclude malignant ulceration, tuberculosis, polyposis, and other conditions, which might be confused with ulcerative colitis. The characteristic features as noted under the section of pathology should be looked for.

The *x-ray* gives very definite and valuable information. Following administration of a barium meal the twenty-four hour picture usually shows all barium expelled, and no view of the colon obtained. In acute cases, the colon is occasionally represented by a mere streak of barium. The earlier plates are usually negative, but there may be a five hour gastric residue. Completion of the roentgenological examination by a barium enema shows a narrowing of the lumen and absence of haustral markings. It also shows the extent of involvement and the presence of strictures. The lungs should always be x-rayed to exclude early pulmonary tuberculosis.

Differential Diagnosis.—Cases of primary ulcerative colitis are to be differentiated from

the auto-toxic enterocolitis of uraemia and diabetes, and other chronic conditions. The history and co-existing manifestations will as a rule determine the diagnosis in these cases. Other conditions which have to be excluded are, malignant ulceration, diverticulitis of the sigmoid, gastrogenic diarrhoea, and tuberculosis. Of these tuberculous colitis alone requires special consideration. The points of differentiation may be enumerated as follows:—

	Tuberculosis of the intestines	*Chronic ulcerative colitis*
1.—Anorexia	An early symptom	A late symptom
2.—Loss of weight	Gradual	Rapid
3.—Lungs	Associated with pulmonary tuberculosis	Lungs negative
4.—Abdomen	Slight distension	Retracted or scaphoid
5.—Localization	Ileo-caecal segment first involved	Sigmoid and rectum chiefly affected
6.—Blood in stools	Absent or slight	Marked
7.—X-ray	Irregular moth-eaten appearance	Colon narrow and ribbon-like in outline
8.—Tubercle bacillus	Present	Absent
9.—Sigmoidoscopic	Usually negative	Characteristic ulceration seen
10.—Bowels	Alternating constipation and diarrhoea or unaffected	Continuous and increasing diarrhoea
11.—Ileum	Often involved	Rarely involved

In place of anorexia patients with intestinal tuberculosis often complain that after the first few mouthfuls of food, they have a sensation of fullness in the epigastrium and no desire to eat more (Pritchard[13]). The slight abdominal distension is due to the involvement of the ileum and interference with the proper digestion of food. Even in the terminal cases of tuberculous colitis that I have seen, the abdomen was sometimes flat but never scaphoid in appearance, as in ulcerative colitis.

In the series of autopsies reported by Schwatt and Steinbach,[14] the rectum showed tuberculous ulceration in seven per cent of the cases, and usually associated with marked involvement of the other segments.

Haemorrhage from a tuberculous colon is rare because of the obliterative endarteritis characteristic of the tuberculous process. Blood in the stool is therefore not a feature, whereas in chronic ulcerative colitis, it is one of the outstanding clinical findings.

Through the courtesy of Drs. D. A. Stewart and J. E. Pritchard, Manitoba Sanatorium, Ninette, who have done extensive investigations on tuberculous entero-colitis, I have recently conducted a series of twenty-five sigmoidoscopic examinations on patients known to be suffering from tuberculous disease of the bowel. In none of these cases was there sigmoidoscopic evidence that could possibly be confused with primary ulcerative colitis, and indeed twenty of the cases were quite negative. Five cases showed slight abnormalities of no diagnostic significance. These findings indicate the value of sigmoidoscopic examination in differentiating these two conditions and further confirms the fact that while tuberculous colitis attacks chiefly the upper end of the colon, primary ulcerative colitis is mainly found in the lower part.

Treatment.—The keynote in the successful treatment of ulcerative colitis is the protection of the ulcerated mucosa from irritation by the faeces and septic discharge. The application of this principle must be carried out by whatever method or combination of methods may be indicated in each individual case. In the earlier stages, active medical treatment is indicated, but this should not be persisted in too long where improvement does not occur. No case can be considered purely and always medical, or purely surgical. One must be supplemental to the other. The various forms of treatment may be tabulated as follows:—

Medical

1.—Diet
2.—Drugs
3.—Vaccines
4.—Bowel irrigation
    (a) Duodenal tube
    (b) Jointed intestinal tube of Einhorn
    (c) Enemas
5.—Anti-dysenteric serum of Flexner
6.—Heat

Surgical

1.—Caecostomy
2.—Appendicostomy
3.—Ileostomy
    (a) Brown operation
    (b) Halsted method
    (c) Mikuliez method
4.—Colectomy
5.—Blood transfusion

The diet should be light but highly nutritious and should be so planned as to leave a minimal faecal residue. The drugs that have been recommended are many, the chief of which are, bismuth, iodine, and the opium derivatives.

Irrigations with enemas are of no value in this condition. We are dealing with a contracted, irritable colon, and to attempt irrigation from below can only do harm.

The use of polyvalent anti-dysenteric serum has several advocates. Hurst[15] reports ten cases treated with gratifying results. This is therapeutic evidence, favouring a specific infection by the *Bacillus dysenteriae*.

There are two objects sought in the *operative treatment* of ulcerative colitis: (1) to provide irrigation of the colon from above, and (2) to divert the faeces and place the colon in a state of physiological rest.

I would enumerate the indications for operation as follows:—(1) Where active medical treatment has failed; (2) Recurrent exacerbations of attacks of diarrhoea; (3) In cases which are rapidly losing ground.

The first object of treatment is carried out most successfully by caecostomy or appendecostomy, preferably the former. The advantage of caecostomy lies in the fact that the fistula will close spontaneously soon after the catheter is withdrawn. I left the catheter out for three days in one case, and had great difficulty in reinserting it. The fistula formed by the appendix may have to be closed at a subsequent operation, as it is lined with mucosa. The caecostomy is performed by sewing a catheter into the caecum by a combined Kader-Senn and Witzel method, under local anaesthesia if necessary. When the patient is back in the ward, this catheter is attached by tubing to the irrigating can. A rectal tube is inserted and this connected by tubing to a large container under the bed. The irrigation of the colon with warm solutions may be commenced at once, continuously at first, later intermittently. First hot normal saline is used and later alternated with boracic acid. The advantages of the rectal tube are obvious. The bed pan becomes unnecessary, and what is most important the patient sleeps throughout the night undisturbed, the treatment causing no inconvenience. The patients whose bowels have moved seven or eight times during the night previous to operation become exceedingly grateful for this rest. On the third day argyrol 5% is instilled through the catheter. Solutions that have been used by others are, calcium carbonate 0.5%, mercurochrome (220) 1%, sodium bicarbonate, potassium permanganate, hydrogen peroxide 2%, silver nitrate 1:10,000, protargol, albargin.

The accomplishment of the second object if considered necessary is best carried out by means of a transverse ileostomy. Brown's technique[16] is that most commonly employed. A muscle splitting incision is made and the caecum identified. The ileum is drawn up into the wound and division effected about eight inches above the ileo-caecal junction. A catheter is purse-stringed into the distal segment to provide for irrigation and a larger tube into the proximal end. The bowel ends are sutured to the parietal peritoneum, the wound lightly stitched and packed with gauze.

Colectomy is rarely necessary, but in selected cases, where the colon has become transformed into a narrow, strictured, suppurating tube, with no hope of healing taking place, this procedure becomes justifiable.

Blood transfusions have proven of distinct value in the cases which have become markedly exsanguinated and exhausted. Young's[17] case shows how profound this anaemia may become. This case was finally diagnosed as bacillary dysentery, after having been treated for some time as one of pernicious anaemia.

I do not agree with Jones [12] when he says that "before any operation is done it is important to explore the whole colon to determine the extent and severity of the disease, provided the patient is not too ill." By careful consideration of the history and physical findings, corroborated by sigmoidoscopic and x-ray examination, one can usually estimate the severity of the condition beforehand, and decide the proper procedure in each individual case, and thus obviate a more prolonged operation. A McBurney incision is all that is necessary in the large majority of these cases.

Before re-establishing the continuity of the intestinal canal, we must first satisfy ourselves that the colon has healed. The following points can be mentioned as evidence of cure:—

1.—A normal appearance of the mucosa on proctoscopic examination.

2.—The disappearance of all symptoms.

3.—The absence of pus and blood microscopically in centrifuged salt solution that has been run through the colon from the artificial opening to the anus. (Stone).[18] These findings are to be checked, and if maintained for two months a re-anastomosis is indicated, providing the colon has not in the meantime become transformed into a small fibrous inelastic and useless tube.

During the course of any given treatment, it is essential to check up the progress by direct visualization of the mucosa of the bowel through the sigmoidoscope.

The period of post-operative treatment varies a great deal. In our series three months was the shortest and ten months the longest period before it was safe to remove the tube from the caecum.

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CEREBRAL HAEMORRHAGE IN THE NEWBORN*

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OF late years the profession has come to realize more and more the extensive rôle played by cerebral haemorrhage in the causation of still-births and deaths occurring during the first week or so of infancy. Such deaths and still-births which have been considered from time immemorial to be due to syphilis, asphyxia and pulmonary atelectasis in the majority of cases were probably due to cerebral haemorrhages. At least, autopsies and lumbar punctures in such cases occurring in the last few years have frequently revealed brain haemorrhage. Possibly the condition is more prevalent than in the past; of a certainty it is more frequently recognized. The quotation of a few statistics will serve to show how very prevalent the condition is.

Warwick in 1919 in 36 autopsies found intracranial haemorrhage in 50% of cases. In 1921 in 200 autopsies, the same writer found intracranial haemorrhage in 40% and two-thirds of these, in his opinion, were due to the haemorrhagic diathesis. Bailey in 100 autopsies found 40%; Parrott in 34 autopsies found 76%; Losie in 274 autopsies found 25%. These autopsies were all in either still-births or infants dying during the first week. Schwartz found that 65% of infants dying during the first five months showed macroscopic effects of birth trauma as indicated by haemorrhage or focal or diffuse areas of softening. Holland found that 88% of deaths following breech delivery showed lacerations of the tentorium cerebelli.

Now if one can believe these figures, which all come from reliable sources, cerebral haemorrhage is indeed a very common cause of death during the first week. So that many cases of cerebral haemorrhage undoubtedly die unrecognized and many unrecognized cases undoubtedly live and probably show no bad effects, but many unfortunately do. Its early recognition and early treatment is therefore of great importance.

In presenting this paper I shall have to speak on the more commonly recognized and proven

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etiological factors be they purely obstetrical or otherwise; on the subject of prevention I shall only dare to speak on the non-obstetrical or paediatric measures. The morbid anatomy of the condition will of necessity be discussed with the etiology.

The most useful classification is probably that of Eustis and Munro, of Boston. It is an etiological classification. They speak of (1) a traumatic group; (2) an asphyxia group; (3) a foetal disease group, including the haemorrhagic diathesis of the newborn, the toxaemias, syphilis, etc. Prematurity is of course always a potential predisposing cause. Authorities differ as to the relative frequency or preponderance of one group over the other, and until more work has been done on the coagulation time and bleeding time of newborn infants, the traumatic group will probably be considered the most frequent.

Obstetricians seem to be of the opinion that trauma is the chief cause; the paediatrist that the haemorrhagic diathesis is the most frequent cause. Many hold that asphyxia is not a frequent cause but only in reality a frequent symptom. Syphilis is probably not a frequent etiological factor of haemorrhage as early as the first week, but it is a more frequent cause of haemorrhage occurring later on.

Another interesting, if less useful classification is that of Seitz; the haemorrhage is classified according to its location, as follows:—I. Supra-tentorial; II. Infra-tentorial; III. Combined; IV. Lateral ventricle; V. Intra-cortical; VI. Haemorrhage about the basal ganglia in the pons and medulla.

First, *Trauma.*—The traumatic group. Observations and experimental studies extensively recorded in the literature of obstetrics have now determined the exact mechanical factors which affect the traumatization of the meninges, especially the dura mater. In every labour some compression of the foetal skull must necessarily occur unless the head be abnormally small or the birth canal abnormally large. This compression produces a reduction in the size of the skull and a marked change in its configuration. Compression is as a rule free from any harmful effect; compensatory measures such as escape of the spinal fluid into the spinal canal and reduction of the blood volume in the skull allow for some compression. Compression, however, if excessive or if the foetal parts are delicate and friable, produces tearing of the intra-cranial structures.

I.—*Lateral compression with overriding of the parietals* is the usual thing. The effects of such compression are two-fold:—(a) Overriding of the parietals causes a folding over and stretching of the dura in the sagittal suture, rupture of the longitudinal sinus may ensue, and the veins on one side as they empty into the sinus may be torn; haemorrhage occurring and the blood flowing over one or other of the cerebral hemispheres. (b) Lengthening of the long diameters of the skull, which frequently causes a stretching of the falx cerebri. This usually occurs where the falx fibres diverge to form the upper blades of the tentorium. Haemorrhage in this locality has been very frequently found at autopsy.

Certain complications of labour tend to aggravate this lateral compression, such as (1) an undue disproportion between the size of the head and the size of the pelvis encountered in cases of contracted pelves; tumours and exostoses and excessive size of the foetal head; (2) abnormal presentation of the vertex as face, brow and occipito-posterior positions, (3) rigidity of the cervical or vulvar ring.

If this lateral compression is suddenly accomplished by forceps extraction, or a large dose of pituitrin or improper timing of its administration; or if the dura be abnormally fragile, tearing of intra-cranial structures may be expected to occur.

II.—*Compression of the skull in the anterior-posterior diameter* is also a frequent cause of tears. As a result of this compression the skull becomes convex and the falx is pulled upward. This type of compression is most frequently produced in the latter part of the second stage when the occiput is being pushed up against the pubic arch to favour extension. A favourite practice, I believe, is that of delivery of the head between pains by upward pressure on the brow. The head is compressed from before backward and if greater pressure is applied over one frontal bone than over the other, a torsion results which may sever the stretched falx. Similar compression occurs in cases where the head rotates to the hollow of the sacrum, and is delivered in a persistent occipito-posterior position. Here the brow or the

bridge of the nose impinges against the lower surface of the symphysis and the occiput is forced over the perineum by a movement of flexion. If the perineum is very resistant the head may be subjected to considerable antero-posterior compression before final delivery. Compression in the long diameter will also occur if the head is lying transversely, and it were possible to apply and lock the forceps in that position.

When haemorrhage occurs in a short normal delivery it is thought that the head might have been subjected to a sudden severe pressure in its passage through an incompletely dilated cervix and a rigid perineum. Ehrenfest of St. Louis lays great stress on the use of pituitrin as a factor causing sudden compression of the skull and says that its use has been followed by a large number of intra-cranial haemorrhages.

It has long been recognized that the mortality in breech extraction is very high (10—15%). It is now definitely known that the frequent cause of death is an intra-cranial injury with haemorrhage. Exaggerated overlapping of the parietal bones over the squama of the occipito bones occurs associated with a folding over of the dura and the rupture of the veins entering into the transverse sinus, or rupture of the sinus itself, or the cerebellum may be pushed against the overlying tentorium sufficiently hard to cause its rupture. These conditions may be aggravated as a result of a hastened endeavour to deliver the head at all costs within the time honoured limit of eight minutes in order to prevent asphyxiation; frequently the head is delivered in four minutes. Truly the unborn infant in cases of breech delivery may be said to be between Charybdis and Scylla. If delivery is not hastened pressure on the cord or a premature inspiration may cause asphyxia; on the other hand, if delivery is hastened intra-cranial haemorrhage may be produced.

In discussing trauma one must also list ping-pong fractures and occasionally linear fractures of the vault as etiological factors.

Second, *Asphyxia.* — The rôle played by asphyxia in the causation of haemorrhage is not as definitely proven as that played by trauma. Some would list it as a very frequent cause; others consider that asphyxia is more frequently a result of brain traumatization and haemorrhage. There is no direct proof that an abnormal increase in carbon dioxide will cause venous congestion, and clinically asphyxiated babies have not been proved to show this blood picture at birth, therefore from a strictly scientific point of view it is incorrect to speak of the newborn baby as being asphyxiated; nevertheless a clinical type of asphyxia is recognized to occur at and before birth. (Eustis and Munroe, Boston).

It is thought that asphyxia can occur from pressure on the cord during delivery; from premature separation of the placenta, diseased placenta, and contracting placental site; from prolonged dry labour and prolongation of the interval between the birth of the head and the birth of the shoulders. Any of these conditions will cause cerebral venous congestion and as a result cerebro-spinal pressure increases synchronously and excessive cerebro-spinal hypertension causes death from respiratory paralysis, due to medullary oedema. Increased pressure also causes rupture of the cortical and subcortical vessels and cerebral veins, producing haemorrhage which in turn increases pressure on the brain. Intra-cranial haemorrhage occurring intra-uterine or intrapartum will of course also cause increased intra-cranial pressure with medullary oedema and death, or the infant is born asphyxiated so that asphyxia *per se* may not be such a very common cause of haemorrhage. Trauma at the base of the brain without haemorrhage might cause medullary oedema and asphyxiation at birth.

We have then a true asphyxia brought on from mechanical interference with the oxygen supply, which may or may not cause haemorrhage, and asphyxia resulting from trauma, which trauma may or may not be associated with haemorrhage, but the fact remains that the vast majority of clinically asphyxiated babies at birth who do not immediately recover die later, and at autopsy show evidence of cerebral haemorrhage and even those that do improve, later on show evidence of having had brain injury at birth and are seldom if ever free from nervous or mental disturbances.

Third, *Foetal Disease.*—Status haemorrhagicus or haemorrhagic diathesis. During the first few days there is frequently a condition of the blood which favours haemorrhage. The blood

has a prolonged coagulation time and frequently a prolonged bleeding time. This tendency is particularly apt to be exaggerated during the second, third, fourth and fifth day, and even to the twelfth day. The normal bleeding time is two to five minutes. The normal coagulation time is seven minutes; the coagulation time is, however, frequently prolonged to twenty, thirty or even forty minutes without haemorrhage occurring; but let the bleeding time be even slightly increased, and haemorrhage is almost certain to occur; or if the coagulation time be only slightly increased and the bleeding time greatly prolonged, then again haemorrhage is apt to occur. The exact condition present in the blood has been and still is a question of considerable controversy. Prothrombin has frequently been found lacking in quantity, but the more general consensus of opinion held is that the change is more frequently a qualitative one. There may be an excess of antithrombin factors.

Graham in 1912 stated that all conditions of the new-born which are characterized by haemorrhagic tendency are most probably due to deficient oxidation and can be experimentally produced by chloroform inhalations as well as by direct asphyxiation. These findings if reliable would tend to clear up some of the more obscure points in the etiology of intra-cranial haemorrhage and their relationship to asphyxia and the haemorrhagic diathesis. This haemorrhage may be entirely intra-cranial but frequently is associated with bleeding from the mucous membranes of mouth, stomach, kidney, intestines, or in the skin. Now it can be readily understood how a very slight intra-cranial trauma with little or no bleeding, in the presence of status haemorrhagicus might around the second, third, fourth or fifth day bleed profusely. What percentage of intra-cranial haemorrhages are due to this cause is a little uncertain but probably at least fifty per cent—some authorities give as high as seventy-five per cent; certain it is that is a very frequent cause.

Syphilis.—Syphilis is thought seldom to be the cause of haemorrhage at birth, although a possible but probably very rare cause of intra-cranial haemorrhage during the first week or ten days.

Toxaemias of pregnancy are thought also to be occasional contributory causes. Prematurity is undoubtedly a frequent cause insomuch as vessels and brain structures are more friable and vitality is lower. There is also a not uncommon condition of generalized haemorrhage and jaundice occurring shortly after birth. The condition is frequently familial and often several infants are affected. The true nature of the condition is not known—it is, however, known that the fibrinogen factor in the blood is frequently at fault in these cases. Cerebral haemorrhage sometimes occurs associated with jaundice—haemorrhages from mucous membranes are, however, more common in this condition.

Diagnosis and symptomatology.—It is important first of all to decide whether one is dealing with a case of intracranial haemorrhage and then to decide whether the causative factor is status haemorrhagicus, trauma or otherwise, or a combination. It is unnecessary as a rule to ascertain whether the haemorrhage is supra- or infra-tentorial or right or left-sided. If surgical intervention is contemplated more hope can be held out, however, if the haemorrhage can be localized. The pyramidal tract is as a rule poorly developed at birth and myelinization only slightly advanced; the reflexes are often unreliable and the presence of paralysis and paresis difficult to ascertain, so that one cannot localize the lesions with the same exactitude as would be possible in the adult. The symptoms in all cases are essentially those arising from increased pressure or cortical irritation. Traumatic or asphyxia cases show symptoms at birth or certainly during the first twenty hours although the symptoms might not be so obvious until the second day and often pass unrecognized until the third day.

When the haemorrhage is massive the infant is usually asphyxiated and prolonged efforts at resuscitation are necessary to produce any inspiratory gasps. The infant may then do well for a few hours if the haemorrhage is not too massive and the condition of asphyxia is considered to have no alarming import. The parents are told that they are the possessors of a fine, healthy nine-pound baby, and probably the baby nurses well once or twice and may, although this is unlikely, cry lustily, but unfortunately the compensatory mechanism for lowering the intra-cranial hypertension is unable to cope with the ever-increasing pres-

sure. The baby becomes restless, refuses to nurse, is wakeful or drowsy and may have a peculiar sharp distressing cry; it looks pallid and localized twitchings occur which may be followed by generalized convulsions; facial twitchings, strabismus and nystagmus are common; the knee jerks are frequently exaggerated; ankle clonus and rigid extremities may be sometimes elicited. The pulse is frequently full and slow and often intermittent or irregular. The respirations are usually very slow and shallow; and the normal cry may disappear or respiration may be extremely rapid. These babies on account of often lying quietly and breathing sluggishly are considered to be suffering from pulmonary atelectasis, and undoubtedly there is considerable atelectasis present. The fontanelle is not so frequently bulging as one might expect. I have not seen it in five traumatic cases.

In supra-tentorial cases sometimes the twitchings are one-sided for a time. The infra-tentorial cases on account of compression and oedema of the medulla show marked cyanosis and great interference with the breathing; convulsive respiratory seizures with rhythmic and Cheyne-Stokes respiration being frequent. The babies are listless, the pulse is at first slow and bounding and later rapid and feeble, and temperature may be 104-105°. Cranial nerve palsies may be present. Terminal states of supra-tentorial cases also show medullary oedema. Clear cut cases of either type are not frequent. The status haemorrhagicus cases may present similar symptoms. The blood in these cases, however, shows prolonged coagulation and bleeding times and the symptoms seldom present themselves before the second day, usually the fourth day and often as late as the twelfth day. Blood may appear coming from mouth, rectum or kidney, or petechial haemorrhages or purpuric spots may occur before symptoms of intra-cranial haemorrhage show up, or cerebral haemorrhage may occur without any visible haemorrhage elsewhere, although this is unusual. (Of course cerebral haemorrhage does not always occur in this condition). The symptoms may be very sudden in onset or may be gradual. The baby may be apparently a fine specimen, nursing nicely, crying lustily and resting quietly for a few days and then the tragedy begins. The baby refuses to nurse or nurses poorly, probably has to be shaken and aroused repeatedly during the process; baby looks pallid, and cry is feeble or sharp; it loses weight rapidly; then any of the symptoms which occur in the traumatic cases may present themselves. Frequently the first symptom is the sudden onset of cyanosis and Cheyne-Stokes respiration. Sometimes a similar onset of convulsions, rigidity and eye signs.

Briefly to summarize, one ought to be on the look-out for cerebral haemorrhage should any of the following signs or symptoms occur:—(1) An infant born asphyxiated; (2) Refusal to nurse satisfactorily; (3) Sluggish breathing, abnormal breathing or cyanosis; (4) Convulsions or twitchings; (5) Haemorrhage from mouth or rectum; (6) Undue drowsiness or feeble cry or extremely sharp cry; (7) Marked pallor, rapid weight loss.

Treatment.—In all cases where an infant is born asphyxiated, one should bear in mind that they may be suffering from cerebral haemorrhage, therefore extreme and violent methods of resuscitation are to be condemned owing to the danger of producing a large tentorial tear where previously a small one only had been present. All cases showing suspicious symptoms should have a lumbar puncture performed on them at once partly for diagnosis and partly for relief of symptoms. The coagulation and bleeding times should be taken. The spinal fluid will be under pressure frequently as high as 15 to 30 mm.; the normal being 6 to 10 mm. In the infra-tentorial cases the fluid will be almost pure blood, in the supra-tentorial cases the fluid usually has a reddish tinge but frequently has only *a slight cloudy or turbid appearance and blood might not be considered to be present* if a microscopic examination were not made.

All cases should have the lumbar puncture repeated, once or twice daily, 10 to 15 cc. being withdrawn. By means of the spinal manometer, the amount of fluid to be withdrawn can be more successfully gauged; attempts should be made to lower and maintain the pressure at 10 mm. or under. Failing this, or failing to relieve symptoms by lumbar puncture, intra-ventricular puncture should be performed. This is performed by passing the spinal needle through the anterior fontanelle, downward and inward; puncture is made ¼ inch from the long

sinus and opposite the lateral angle of fontanelle.

When lumbar puncture has not successfully relieved symptoms, excellent results have occasionally followed subtemporal decompression, done under local anaesthesia. Numerous cases where this has been successful are to be found in the literature.

All cases of status haemorrhagicus in addition to spinal puncture must have whole blood injected intramuscularly or transfused. In the former method 20 to 30 cc. repeated in twelve to twenty-four hours; in the latter 25 to 50 cc. It is better not to transfuse too much on account of raising the blood pressure and causing additional oozing. Blood from both parents should be given when intramuscular injection is used. The transfusion should be repeated if necessary. The injection of whole blood from the mother or father has proven a specific in a great majority of the cases, if given early, and repeated if necessary. Cessation or continuance of bleeding from mouth or rectum offers frequently a guide as to the progress of the case. Shortening of the bleeding time and coagulation is, however, more reliable. The injection of whole blood is also advisable in traumatic cases to hasten coagulation in torn structures, and to prevent the development of status haemorrhagicus, which might produce severe haemorrhage where previously haemorrhage had been only moderately severe.

Once it is evident that cerebral haemorrhage is present no harm can be done from the intramuscular injection of whole blood, and one might dispense with the estimation of coagulation and bleeding times except for the fact that in status haemorrhagicus cases, one must be prepared to repeat the injection of whole blood, whereas in straight traumatic cases it would be unnecessary and probably useless. In the latter cases frequent lumbar puncture is usually necessary; in the former frequent blood injections with fewer punctures.

Other methods of treatment must not be neglected; the baby must be kept warm and as quiet as possible; unfortunately lumbar puncture and blood injections are disturbing operations. The baby should not be put at the breast but should be fed with a dropper or Breck feeder or gavage. Fluid should be supplied liberally by bowel; 5% dextrose is very useful. Sedatives per rectum are also useful; 5 to 10 grs. of bromide with 1 or 2 grs. of chloral. The advisability of applying cold to the head is questionable.

In order to emphasize the importance of early diagnosis and treatment, I shall cite a few cases illustrating just what one may expect to occur in after years in the untreated case that lives.

Case I.—Child S., two years old, child has been under my care on and off since the age of 2½ months; at that time and for several months after, the child was a very difficult feeding case, was extremely fussy and irritable; never rested properly, cried a great deal and gained poorly. Case was considered a case of fat intolerance; my records show that I did not make a careful inquiry into the birth history at that time. Child was seen again in November, 1923—brought on account of weakness of the back and legs. It was unable to sit without support and had only recently started to walk and then only if parents would hold both hands when it would trot along leaning forward and dragging the right leg a little. Child had previously propelled itself about the floor on its abdomen; child is mentally backward and screams when in presence of strangers, occasionally grins in a fatuous fashion.

Physical examination reveals little except general muscular weakness and some rigidity of thigh adductors; Wassermann blood negative; C.S.F. negative. Careful inquiry into the history reveals the following:—

First child, forceps delivery, head badly marked, refusal to nurse, extremely drowsy and languid for weeks, weaned, took the bottle very little better than it nursed; mother would spend over an hour trying to get the baby to take an ounce. The drowsiness after first month was replaced by screaming fits, and more or less continual wakefulness.

Case II.—Child C. five years old. Thin, nervous child; never rested well by night or day; appetite and digestion always poor; never thrived like another child; great difficulty getting something to agree with her in infancy. Child although in the happiest of home surroundings is always tired, has a worried look, extremely emotional, but mentality O.K.

History reveals following.—First baby instrumental delivery; eight lbs. apparently normal baby. During the first week bled several times from mouth and bowel; was very drowsy all through one summer; refused to nurse; weaned with little more success; until age of six months an extremely drowsy child. The mother of this child has since given birth to a healthy eight lb. baby, which at five months of age is a happy breast fed baby.

Case III.—Child F. six months of age. First seen at age of four months when having convulsions; mother weaned child at one month and tried various foods because infant not gaining. The infant did not do any better however and in fact lost weight; had had frequent screaming fits which mother supposed to be due to colic. Lumbar puncture at four months revealed bloody stained spinal fluid; 20 cc. under pressure 24 m.m.; spasticity both legs present and child pale; undernourished and feeble. Repeated lumbar puncture failed to relieve symptoms as permanent damage had probably resulted from pressure of clot. At eight months child still alive weighs eight lbs and has frequent convulsions.

Birth history—normal delivery?; asphyxiated at birth and great difficulty reviving it.

One might go on and quote other cases, but these three are fairly typical and go to show how tragical the after-effects may be.

These cases illustrate what may be the real etiological factor in many difficult feeding cases. Probably many of the screaming babies which are supposed to have intestinal colic and in whom one finds great difficulty in establishing a gain in weight are essentially cases of cerebral haemorrhage. I think I can safely say that anyone doing an average obstetrical practice will have from two to three cerebral haemorrhage cases per year and at least 50% of these would develop into normal individuals provided they received proper treatment early.

Therefore, in conclusion, it is to be hoped that the time will soon come in all maternity hospitals when it will be considered advisable to take the coagulation and bleeding times in all new-born infants, chart them and repeat them daily for a week or ten days; if as well a sharp lookout be kept by the nursing staff and hospital internes for any of the cardinal signs of intra-cranial haemorrhage and immediate lumbar puncture be performed in suspicious cases undoubtedly many lives will be saved; fewer cases of spastic diplegia, epilepsy, mental deficiency and instability will be seen, and probably fewer screaming babies, difficult feeding cases and nervous wrecks.

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ERYSIPELAS SUCCESSFULLY CURED BY SUBCUTANEOUS INJECTION OF COW'S MILK

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ERYSIPELAS has been defined as "an acute specific disease due to an infection of the skin by the *streptococcus pyogenes* leading to a local dermatitis and constitutional symptoms of which fever and toxæmia are the most prominent."

In connection with streptococcic infections, it is well known that the streptococci form a group of micro-organisms of which the different members vary greatly in their virulence, in their morphological and cultural features and in their bio-chemical reactions. Two general classifications are made.

1. The highly virulent type called *streptococcus pyogenes* which is generally conceded as identical with the *streptococcus erysipelatis* and to which recent pathologists have given the name *streptococcus hæmolyticus* on account of its property of hæmolyzing when cultivated on blood-agar; and,

2. A less virulent type, *streptococcus salivarius* and *streptococcus fæcalis* of some writers and *streptococcus viridans* and *streptococcus mucosus* of others. The first group are seen in long and curling chains; the others are seen in short chains of two to four members. With particular reference to group one, these, besides being the causative factor in erysipelas are also responsible for acute abscess formation, acute cellulitis and lymphangitis, in severe operations and post-mortem infections of streptococcic origin and in streptococcic infections complicating scarlet fever, influenza and other specific fevers.

Before discussing the generally-adopted serum therapy of this disease, I would like to say a few words in connection with the ætiology of erysipelas. A careful examination reveals the fact that in a vast majority of cases there is some abrasion present in the skin at the site of infection; it may be an insect bite, chafed foot, or a a surgical incision. Bad hygienic surroundings contribute greatly to the incidence of the disease. Formerly

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the disease was rife, almost epidemic in hospitals and chiefly in the surgical wards. It is well known how tragically liable women during the puerperium are to this infection. It is said to have a seasonal incidence (January to May) and Newsholme showed that the curves of its prevalence conformed somewhat to those of scarlet fever and acute rheumatism. It is more common in women than in men. Alcoholism, debility and Bright's disease are predisposing factors. So is gout. There are authentic instances on record of a family predisposition. I had one patient who had erysipelas three times.

As the purpose of this paper, however, is to discuss the results of foreign protein therapy in relation to erysipelas I will omit any reference to the symptoms, course, complications and diagnosis of the disease and instead will say a few words regarding the general and specific methods of treatment at present employed.

1. *Curative.*—Various applications are used varying from ichthyol, 25%, to perchloride of mercury, 1 to 4,000 and iodine. From Hippocrates, who highly recommended the application of cold water, to Lesk (in the *Annals of Surgery*), who recommends chinosol, and Allan and others who report good results from x-ray therapy and brilliant green.

2. *Regarding General Measures.*—Stimulation with brandy; controlling the temperature with hydrotherapeutic measures; giving tincture of the perchloride of iron, etc., are measures generally advised by therapeutists.

3. *Serum therapy.*—Serologists administer univalent pyogenes serum followed by small doses of *streptococcus pyogenes* vaccine. One is generally advised to give 50 c.c. intravenously (I quote from Matthews and Sir Thomas Horden of St. Mary's and St. Bartholomew's Hospitals, London, in their article in "Text Book and Practice of Medicine," 1923 Edition): "and to follow this at once with very small doses of vaccine, preferably autogenous, such as two to five million cocci on alternate days, for four to six doses. The serum may be repeated on two to four occasions, at intervals of twenty-four hours, concurrently with the vaccine." In our experience this treatment only proved successful in five out of twelve cases, and in these five, besides being very expensive, it took from four to nine days to accomplish definitely encouraging results. Antistreptococcic serum costs $10.25 for 50 c.c., and with the difficulty of procuring with maximum rapidity a satisfactory autogenous vaccine, this particular treatment is expensive and impracticable. One has a rapidly spreading infection. One, therefore, needs a rapidly prepared line, both of defense and attack.

The experiments of Unna in the nineties mark the commencement of parenteral protein therapy. Unna produced surprising results in leprosy by the injection of meat juice and Mathieu proved that deutero-albumose was able to elicit the reaction of tuberculin. Later in 1905, Von Pirquet showed that the parenteral introduction of ordinary horse serum caused peculiar effects. Finally Professor L. Schmidt, of Prague, following protein therapy to a logical conclusion, demonstrated that by carefully preparing ordinary cow's milk and introducing it intragluteally, surprising results followed. Namely the injections were followed by a rapid rise in temperature, and it was further shown that this artificial fever possessed a curative effect in certain neoplasms, progressive paralysis, chronic arthritis and in many of the acute infectious fevers.

In fifty-two cases of erysipelas treated in this manner with milk injections by Professor Schmidt, thirty-one showed defervescence and a decrease in the swelling on the first day; and in twelve cases on the second day; and in four cases on the third day. That is, definite arrest in the spread of the disease and a decided improvement with rapid decrease in the temperature was noted by the end of the third day in forty-seven out of the fifty-two cases treated. A very splendid percentage you must admit.

Drs. J. Chalier and R. Des Jacques, of Lyon, as reported in the *Lyon Medicale*, May, 1924, employed foreign protein treatment in erysipelas in six cases and observed a favourable result in four of them. The duration of the fever was shortened. The first injection causing a noticeable drop in the temperature.

The localized areas remained limited and soon faded: On the second day the redness was noticeably less and on the third day all symptoms had disappeared. The daily dose of milk used by these French physicians was ten grms. When one remembers that the usual duration of erysipelas is from two to four weeks, the results above recorded from the Prague and Lyon Clinics are decidedly interesting.

At the Yarmouth Clinic Infirmary we first employed foreign protein treatment of erysipelas on February 12th., 1924.

Mrs. E. T.—Age forty years, nine children, never ill before. Taken acutely ill February 9th. Her face burning and red; headache. This sense of burning increased

and the face became swollen; vomiting first day. When seen February 12th., the temperature was 102°, and the pulse 110. Patient had been ill for three days; her eyes were closed, the face felt very hot, the swelling had spread to right neck and shoulder. She was given 3 c.c. of cow's milk intragluteally. Half an hour afterwards she had a pronounced chill lasting fifteen minutes, temperature going up to 104.5°. Then dropped in three hours to 99.4°, pulse to 90. Slept well that night. The dose was repeated next morning when 3 c.c. of milk was given subcutaneously. The temperature dropped to 98.4°, and the pulse to 80. No swelling was noticeable in the face to-day, the third day; slight amount still remained in the neck. The patient returned home on the fifth day with face and neck normal, and made an uninterrupted recovery.

Mrs. C. A. P.—Age forty-six, four children, always enjoyed good health. Developed erysipelas on the left side of the face; about the right eye and right ear the skin was swollen and puffy. The patient complained much of the sensation of burning on the face. Temperature 102.5°, pulse 115. Was given 5 c.c. milk subcutaneously in the abdominal wall at 2 p.m. At 2.30 had a mild chill. At 3.30 temperature was 103.5°. At 9 p.m. it had dropped to 99.5°, pulse to 92; the face felt less painful; there was no increase in the area of redness. On the second day 5 c.c. of milk were again given. The temperature at 12 a.m. was normal, pulse 80. The swelling and redness had gone from eye and ear; eye now was able to be opened. Sensation of burning in the face had passed away. On third day, repeated the injection of 3 c.c. milk. Patient recovered and returned home. No visible signs except face looked somewhat redder than opposite side.

Mrs. C. C.—Fifty years old. Took sick suddenly with erypsipelas, right leg. Involved area extended six inches down the middle and external surface of the leg. Much redness and swelling were noticed. The temperature was 100°, pulse 100. Had been ill for two days when seen. Given 5 c.c. of milk subcutaneously at 10 a.m. morning of the third day; two hours afterwards had a decided chill and temperature dropped to 99.5°, pulse to 90. At 9 p.m. temperature was 99°, and the following morning it was normal. Area of redness had diminished to one-third of original size. The patient was given 2 c.c. on the third day; the temperature remained normal. She was out of bed on the sixth day of disease. All systems normal.

Miss L. G.—Age sixteen years, developed an erysipelas of the face starting in front of the left ear from a slight abrasion of skin, and spread rapidly involving left cheek, left eye and left part of forehead and behind left ear. Temperature 102°, pulse 110; sore throat had been complained of for three days before her physician was consulted. When seen by him he ordered local applications, ichthyol, etc. When seen by him next day, the temperature was 105.5°; the swelling had extended down the left shoulder and left side of cheek, both eyes were closed, her pulse was 120. The patient complained of intense burning of face and the throat was very œdematous. She was given 5 c.c. milk intragluteally the same day. When seen at 2 p.m. on the following afternoon, the temperature was 104.5°; the swelling had decreased on neck, breast and face; and the patient felt much better; pulse 100. Repeated 5 c.c. of milk subcutaneously 2nd injection, no change noticed. Patient was given a third injection of 5 c.c. milk, and when seen the following morning, (seventh day of illness), the temperature was normal, the pulse was 90: that is, after third injection the temperature dropped from 104.5° to 98.6°. All redness and swelling had gone except a small area two inches square near the left eye. The patient was up and about the on the twelfth day. This patient lost all her hair on the left side of head following this attack. It is very interesting to note that she had previously consulted her family physician for tubercular glands of the neck (right side); following this treatment he informed me that the glandular involvement had entirely disappeared. Investigating this phenomenon I found that Sogo reports 100 cases of laryngeal, pulmonary, peritoneal and glandular tuberculosis, seventy per cent. of which showed some decided improvement from a foreign protein. He used, however, a product of decomposition of neutroprotein containing albuminous bodies, which is based upon the good effect of albumen therapy.

Mr. N. C.—Age seventy-nine years, had erysipelas of face for four days before seen by his physician. He was given 5 c.c. milk subcutaneously, next day dermatitis had spread over entire face. Both eyes were closed, and the cellulitis extended on chest and both sides. Feet were "on fire" he said. The temperature was 104°; pulse 110. Repeated 5 c.c. milk next day. Swelling had decreased. Temperature 99.5°. Face not burning. Area of redness much lessened. Itching gone. Next day temperature normal. Made uneventful recovery. Up eighth day.

Miss J. D.—Age sixteen. Had slight abrasion on left side of ankle from a tight fitting shoe. Developed an erysipelas of left ankle which extended up the outer side of the leg four inches. This area was very red and swollen. The temperature was 103°. The pulse 101. She was seen on the evening of the first day of infection, and was given 3 c.c. milk subcutaneously. No reaction. Next morning temperature normal. Pulse 90. Area of dermatitis had diminished except over abrasion. Repeated the injection, giving 2 c.c. and condition cleared up third day. Up and about on fifth day.

Mrs. C. C.—Had erysipelas of face, neck and back. She had been ill for six days. When seen her temperature was 100°, pulse 90, respirations were 18. An injection of cow's milk was given March 13th., 5 c.c. The temperature next day was 100.4°, pulse 110. Repeated an injection 5 c.c. milk subcutaneously. The temperature next day was 99.4°, pulse 110. The next day repeated 3 c.c. of milk injection. On the 16th. the temperature was 100 , the pulse 104. Blisters on back and neck disappeared rapidly. March 17th the temperature was 98 , the pulse 96. The blisters and redness gone. The blotches had disappeared from the back. She was allowed out of bed next day for one hour. Uneventful recovery.

Mr. J. C.—Age sixty. This case is particularly interesting as when seen by me the disease had been in existence ten days and was complicated by encephalitis-meningitis. Patient was taken ill with swelling and redness on left side of face and forehead. The temperature was 100°; the pulse 101. Conditions gradually grew worse. Redness and swelling spreading over entire face involving right neck and shoulder. Given 20 c.c. antistreptoccic serum and usual local applications with the tincture of the perchloride of iron by mouth. Condition was growing progressively worse. Temperature 105°, pulse 130. His physician repeated 20 c.c. serum. No noticeable change in temperature and pulse. On fifth day swelling had spread to neck, both sides of face, both arms. Face was grotesquely swollen beyond recognition. On the seventh day patient became unconscious. There was a definite Kernig reaction with head retraction; the pupils were unequal; the patient was delirious and the bowels were constipated. He could be roused to take his medicine but would sink back into stupor again. The temperature was 105°, and pulse 135. I saw this case in consultation on the morning of the tenth day of disease. He was unconscious; his pupils were dilated; Kernig's sign was present; the reflexes were slightly exaggerated. The temperature was 106°, and the pulse 140. He was given 5 c.c. of milk intragluteally, but this had no reaction. Patient regained consciousness for two hours during the afternoon but died later on in the day.

Four other members of his family all were ill at the same time, in the same house with erysipelas. Wife, age fifty-eight. Temperature 102°, pulse 100. Area involved was left side of face, forehead and left ear. Gave her 5 c.c. of milk intramuscularly. Temperature dropped next day to 99° and patient was normal on the fourth day. *Miss F. C.*, sister of head of the house, was ill three days with erysipelas right face, ear, neck and shoulders. Temperature 104°, pulse 106. Gave her 5 c.c. milk subcutaneously.

On the next day temperature 99°. Repeated another 5 c.c., and on the third day temperature was normal. The two children, ages seven and twelve years, had erysipelas of right leg, and left face respectively. Gave each one 3 c.c. milk subcutaneously. When the injection was given Emile, seven years old, had a temperature of 105°; and Benedict, twelve years old, a temperature of 103°. On the second day Emile had a temperature of 98.6° and on the third day both were normal. Both boys were out of bed on the seventh day.

In connection with the success of this particular method of treatment I note that Dutton in his new work on 'Intravenous Therapy" states on page 297 regarding the treatment of erysipelas "that milk injections have produced a favourable end with crises" in the cases so treated. From time to time medical literature contains the reports of cases which are specifically due to a staphylococcic infection. These however are most unusual. Barbaro states that in cases where the staphylococcus was found "erysipelas was invariably accompanied with vomiting and high fever." During the great war erysipelas was a rare complication of gun shot wounds. It more generally follows small wounds and abrasions.

I would call your further attention to one other fact namely that "blood changes observed in parenteral protein therapy do not form a necessary condition for the curative results." One gets a slightly increased leucocytic count and a marked stimulation of the erythropoietic system. There is a considerable increase in the number of red blood cells and of the hemoglobin index; also one notes the appearance of a great number of nucleated red blood corpuscles. The rise in temperature which generally follows the parenteral administration of milk is a very important factor in its success.

The procedure followed by me for the preparation and administration of foreign protein was as follows: Place the required amount of fresh whole milk, secured from a Government tested herd, in a sterilized container and then in a water bath. Allow water to boil for ten minutes, then shake well and administer either subcutaneously or intramuscularly at regular body temperature. For the former we use the abdominal wall and for the latter the gluteal group. The selection of a subcutaneous or an intramuscular injection depends upon the severity of the infection and the general condition of the patient. The usual dose is from 3 to 5 c.c. This dosage may be repeated if deemed necessary for four or five consecutive days.

I am anxious to try this treatment in the erysipelas of infancy. Some authorities state that children attacked during the first six weeks of life have never recovered, toxæmia being the great cause of death. In children a pin-prick, an excoriation about the vulva or the umbilicus, or occasionally a streptococcic conjunctivitis may usher in the disease; or, again, impetigo of the very young runs into the variety of streptococcic lymphangitis which we call erysipelas. Thus far I have not had an opportunity to try the treatment on any infant.

Summary

1.—The rise in temperature which follows the injection of cow's milk possesses a curative effect in the treatment of erysipelas.

2.—Antistreptococcic serum is expensive, uncertain in its action and not always available for immediate administration. Besides, to get the full effect of this particular method of treatment one needs to give concurrently an autogenous vaccine which is difficult to procure without considerable delay.

3.—Foreign protein (cow's milk) is cheap, simple to prepare, and within the immediate reach of every general practitioner.

4.—It eliminates the delay of waiting to procure serum and autogenous vaccines and facilitates a rapid uninterrupted recovery.

5.—It has proved in our experience a rapid, economical and positive factor in the immediate cure of erysipelas.

6.—Out of twelve cases treated, the eleven which had been seen early before the fifth to the seventh day of the disease, four had the temperature reduced to normal and all other symptoms arrested within twenty-four hours of the first injection; four had the temperature reduced to normal and all other symptoms arrested within forty-eight hours of the first injection; and three had normal temperature and all other symptoms arrested within seventy-two hours of the first injection of the foreign protein.

DESTRUCTION AND REMOVAL OF ACCESSIBLE NEOPLASTIC DISEASES BY ENDOTHERMY*

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I AM greatly honoured by your invitation to visit this conference and bring to the Radiological Society of your great Dominion a report of a too little-known agent in the treatment of accessible neoplastic diseases.

In order to clarify the much confused nomenclature the descriptive name endothermy has been adapted for this agent. It is the production of heat in the tissues from within in response to the many oscillations of a high frequency current, and its special claim to your attention is that it enables the operator first to destroy the malignancy in situ, and then to remove it as a dead mass, in a single operation.

May I say in the beginning of this informal discussion which will merely state the points illustrated by the pictures to be shown later,† that endothermy is not of recent invention or discovery. For a very long time the curative value of heat has been more or less understood, and the task within the past few years has been to develop a technique of application which would adapt the heat to the treatment and cure of accessible neoplastic conditions.

To remove the growth by the surgeon's knife as a mass of viable cells is in many cases to invite metastasis and increase the likelihood of recurrence. By the technique of endothermy we draw a line of destruction necrosis in healthy tissue around the malignancy before the growth is touched. This shuts off lymphatics, blood vessels and sensory nerves to and from the affected part. The lesion itself is next destroyed and then, as an inert mass, it is excised by the so-called endotherm knife. In the use of this knife, the most recent development of endothermy, we employ a current of extremely high frequency dependent upon the three-electrode vacuum-tube system for its oscillations. This sears off lymphatics as it cuts and makes a sterile incision without any of the incrustation which is produced by the cautery knife. Unless metastasis has already taken place it is unlikely to occur. At this point, as an additional safe-guard, a dose of x-ray may be administered to the seared-over base and surrounding tissue. The action of the two agents will be found to be coöperative. Each complements the other.

Case I.—J. K., age fifty-seven, was treated by monopolar endothermy for depressed epithelioma in the wing and tip of right nose. Commencing about two years previously as a scab or scale which broke down and refused to heal; this lesion grew to be about a centimeter in diameter and extended almost to the mucous membrane on the inner surface of the nose. This would have been difficult to excise but it was removed by monopolar endothermy under local anaesthesia, and the photograph shows how satisfactorily nature filled in the depression, a result we could not have expected had x-ray or radium been employed. After the lesion had healed the patient was given a prophylactic dose of x-rays. No recurrence has taken place in over three years. (Figs. 1 and 2).

FIG. 1.—*Case I.* J. K., fifty-one; depressed ulcerating epithelioma in wing of nose. One cm. in diameter. Difficult of treatment.

To treat accessible malignancy by radium or x-ray alone is to depend upon time-consuming tissue conversion which may or may not successfully destroy the growth. Too often we have found that the promising first results from the employment of physical measures led only to ultimate disappointment. And when this happens our patient has lost valuable months in hopeful waiting while the malig-

*Read before the Canadian Radiological Society at Ottawa, June 20, 1924.

†Illustrated by motion pictures.

FIG. 2.—*Case I.* Note good cosmetic result after removal in one treatment by monopolar endothermy. No recurrence in over three years.

nancy progressed. Our highest success undoubtedly follows a wise selection from all the proved methods.

Case II.—C. H., age sixty-two, had been variously treated for eighteen years for lupus vulgaris of the left face and head. The many x-ray treatments had resulted in a marked chronic x-ray dermatitis. Several months ago an epithelioma began to develop in the fibrosis of his left cheek. Resisting treatment, this had progressed until at the time the patient came to my attention the wound was ulcerating and suppurating. Under ether narcosis the whole area was treated by monopolar endothermy and curetted down to a clean base. There has been no recurrence in three years. (Figs. 3 and 4).

FIG. 3.—*Case II.* C. H., sixty-two; epithelioma arising in fibrosis resulting from x-ray treatment for lupus vulgaris.

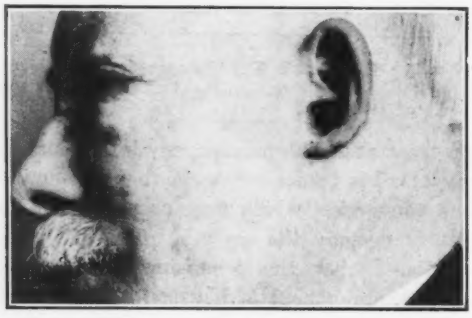

FIG. 4.—*Case II.* Epithelioma healed after single treatment by monopolar endothermy. No recurrence after three years.

Dr. Howard A. Kelly of Baltimore, surgeon and radiologist, said recently before a medical gathering in New York, "Endothermy is, I believe, destined over a considerable field to replace radium and all exsective surgery, or to act as a coadjutor to one or both. Our radium difficulties are:—(1) Lack of uniformity of action; (2) Phases of disease which are difficult to control; (3) Development of radio resistance; (4) Delay in securing results and the need of repeated treatments; (5) Pain following treatment; (6) Likelihood of harm from unskillful treatment through lack of experience. Endothermy—monopolar dessication or bipolar coagulation—is to my mind an extremely valuable new resource in overcoming many of the difficulties enumerated."

It will be plain from this statement of Dr. Kelly that endothermy is technique as well as current. Its splendid results are achieved through the skilful application and control of the current according to methods definitely established. In place of long delays and repeated treatments by physical measures alone, endothermy offers, in accessible cases, the advantage of immediate destruction of the lesion, and its immediate removal in one treatment.

Case III.—A. J. V., age seventy-seven. Eight years ago following a scratch from a blackberry briar, a small scab appeared on the patient's right ear. His physician cauterized it and in the years that followed the lesion was variously treated by salves, pastes, scrapings and x-rays. When the patient came under my care almost the entire outer ear had been destroyed except at the superior angle. It was a foul, ulcerating, suppurating cavity with considerable pus discharging from the external auditory meatus. Pressure anteriorly also caused pus to exude. The patient was much debilitated and was a chronic nephritic with blood pressure of 220. I was therefore loath to anaesthetize him and referred him to one of our largest institutions for radium treatment. When this was refused, with the full consent of the family who knew the patient was a bad operative risk, under ether narcosis the wound was thoroughly treated by bipolar endothermy and curetted. Observe the lesion completely healed. (Figs. 5 to 7).

FIG. 5.—*Case III.* A. J. V., age seventy-seven; epithelioma of right ear. Three years' duration.

FIG. 6.—*Case III.* Lesion completely healed after treatment by bipolar endothermy.

FIG. 7.—*Case III.* Artificial ear made by O. A. Ilkins, New York, formerly of Walter Reed Hospital.

Case IV.—J. W., aged sixty-six years, a sailor, was referred by Dr. W. B. Moodie of Valhalla, New York, and reported that about two months previously a pimple had appeared under his tongue. He thought at the time that the dental plate was irritating his mouth, but was assured by his dentist that this was not the case. After that he paid scant attention to the matter, until while he was at sea the pimple began to grow. On returning to New York he went to a hospital where "the doctor opened it and since then it has had a hole in it." Examination showed an indurated mass, about three centimetres by two centimetres in size, involving the right side of the floor of the mouth. It was foul and had a crater-like ulceration to the right of the frenum. It was painful and tender, but no palpable, cervical glandular enlargement could be made out. On June 2, 1921, under ether narcosis the entire mass was completely surrounded or isolated by bipolar endothermy. To establish this definite wall of coagulation necrosis around the malignant area, it was necessary in this case to coagulate through the frenum and inner surface of right jaw. A section for the microscope was then removed with impunity after which the whole mass was coagulated in situ. The dead tissue was next removed and the entire cavity seared over with the current to produce a further penetration of heat. The lingual artery was not ligated; the patient returned to his room in good condition. Next day there was considerable swelling of the tongue and a profuse flow of saliva, but he was free from pain and was able to take liquid nourishment. He left the hospital on the third day in fairly good condition, although toxic absorption had rendered him very cachectic in appearance, and his skin had a dark, yellowish hue, both of which conditions cleared up rapidly.

Sloughing of the remaining necrotic tissues began shortly afterward and was complete in the third week, although a piece of bone sequestrated from the inner surface of the jaw in the sixth week. The wound healed completely, and the patient has remained free from pain. There was an early return to normal diet and a gain of

FIG. 9.—*Case IV.* Immediately following one treatment by bipolar endothermy growth was excised as a necrotic mass. Under surface of tongue is adherent to the floor of the mouth. No recurrence or evidence of metastasis in more than three years.

FIG. 8.—*Case IV.* Rapid-growing prickle-cell epithelioma of the floor of the mouth showing marked areas of induration and crater-like ulceration.

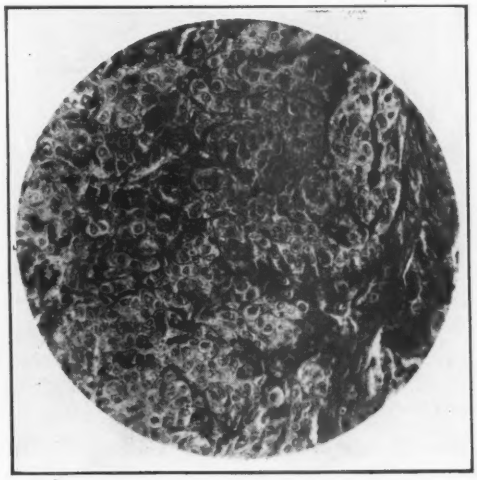

FIG. 10.—*Case IV.* Section showing nests of cells in squamous-cell epithelioma of floor of mouth.

fifteen pounds in weight within three months. Both sides of patient's neck were treated with deep penetrating x-ray as a post-operative prophylactic measure. No recurrence in over three years. (Figs. 8 to 10).

Case V.—W. L., age fifty-eight, when a boy of eleven, let fall on his left hand two or three drops of hot tar. The resulting burn became ulcerated and spread until it was as large as a twenty-five cent piece. For more than two and a half years this persisted despite the use of various ointments. Then its character changed and it became a mass of small seed-like growths which resisted many months of treatment, finally clearing up to leave deep scars. Again, when patient was twenty-two years old, the arm became inflamed on all surfaces, the ring finger growing so enlarged that it was necessary to amputate it. In September, 1920, a diagosis of epithelioma was made, and x-ray treatment was instituted. In April, 1921, after an enforced absence of some weeks from the city, the patient came under my care at the Vanderbilt Clinic. Fig. 11 shows the condition of the hand at this time. The lesion then measured about three and a half inches in length by two inches in width with an elevation of one and a quarter to one and a half inches. Bipolar endothermy was employed as the only alternative to amputation, and the growth was removed in a single treatment under ether narcosis.

FIG. 11.—*Case V.* W. L., fifty-eight. Prickle-cell carcinoma back of hand, involving index and middle fingers and rising 1¼ to 1½ inches above surface of hand.

FIG. 12.—*Case V.* Top view of same hand showing lesion completely healed after treatment by bipolar and monopolar endothermy. No recurrence or evidence of metastasis in more than three years.

The next day the patient was free from pain and reported that for the first time in many weeks he had slept the whole night through. On the second day he left the hospital, there being no after-care in this case except that during the course of the healing an occasional small nodule appeared and was immediately removed by monopolar endothermy; the patient soon resumed his work and has remained in good health for more than three years (Figs. 11 and 12).

It would appear that cases of inoperable cancer are on the decrease, partly for the reason that precancerous conditions are to-day, more promptly than ever before, recognized by both the laity and practitioner, as possible malignancy. Another encouraging sign is the recognition by surgeons of the fact that no one method can successfully be employed in all cases. Though surgery remains the chief weapon against malignancy, surveying the field in general, the progressive surgeon appreciates the value of radium, the x-ray, and endothermy. He again and again meets certain malignant conditions which yield to other methods more satisfactorily than to his knife.

Conclusions

We have learned to enumerate the advantages of endothermy as follows:—

1.—Decreased danger of metastasis and likelihood of recurrence.

2.—Alleviation of pain.

3.—Practically no haemorrhage.

4.—Practically no surgical shock.

5.—Accuracy of dosage; current under absolute control of operator.

6.—Sterilization of wound incidental to treatment.

7.—Patient's post-operative condition generally satisfactory leading to quick recovery and good cosmetic result.

REMARKS ON THE TREATMENT OF CHRONIC PEPTIC ULCER

With a Report of Three Illustrative Cases

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THE apparently endless discussion as to the relative merits of medical and surgical treatment in peptic ulcer goes on with its usual vigour. That there is a place for both forms of treatment, all but the most extreme will readily admit; the difficulty has been to agree as to the types of cases that are best treated medically, and when surgical measures should be employed.

Bennett, physician to the Middlesex Hospital of London, gives the following indications for surgical treatment of this condition:

1.—Cases of chronic pyloric obstruction.

2.—All cases which have relapsed after one course of thorough medical treatment.

3.—All cases with a history extending over many years.

4.—All cases with large ulcers adherent to surrounding structure.

5.—Practically all cases in which a test meal remains in the stomach for more than six hours.

6.—All individuals whose finances makes prolonged medical treatment impossible.

The end results in the surgical treatment of gastric and duodenal ulcer as reported at the 1922 meeting of the American Surgical Association,[1] from the records of the Massachusetts General Hospital in Boston, the Lakeside Hospital in Cleveland, the Lankenau Hospital in Philadelphia and the New York and Roosevelt Hospitals in New York, shows that about ninety-five per cent of duodenal and ninety per cent of gastric ulcers are cured by operation. In this connection the Mayo Clinic[2] reports that less than five per cent of patients operated on for duodenal ulcer and less than ten per cent of those operated on for gastric ulcer fail to obtain satisfactory results.

There is considerable divergence of opinion among surgeons as to the best operative procedure for dealing with the various forms of peptic ulcer. Much will depend on the condition of the patient, the size and location of the ulcer and the skill of the operator.

It must not be forgotten that the basis of success in the surgery of this malady has been gastroenterostomy. As patients returned without relief of their symptoms, with haemorrhage, perforation, or with perhaps recurrence of ulcer, surgeons began practising more radical procedures. Destruction of the ulcer with the cautery, excision of the ulcer, with or without gastroenterostomy, partial gastrectomy, sleeve resection, pyloro-plasty and various combinations of these procedures were advocated. With these more radical measures came an increased mortality, which to the minds of some surgeons did not justify the departure from the more simple procedure of gastroenterostomy. Radical procedures have recently been recommended for gastric ulcer on account of the danger of the ulcer becoming malignant. A study of the literature on this important subject is not convincing, and conservative surgeons of sound judgment will probably not subject all patients with gastric ulcers to the more radical operations, on account of the danger of malignancy, real or potential, until the indications are clearer than at present.

Gastroenterostomy in the hands of good operators has a mortality of between one and two per cent, while the same operators will probably have a mortality of ten per cent or over in their cases of resection. It is true that a few surgeons like Moynihan of Leeds, and Finnister of Vienna, can perform the more radical operations with a mortality little higher than that of gastroenterostomy, but the fact must not be lost sight of that these results are exceptional.

No absolute law can be laid down as to the operative procedure in all cases. *Good surgery above all things conserves the life of the patient*, and it would appear that the teaching of Coffey,[3] to do a gastroenterostomy first and await developments, is essentially sound. The patients who can be cured by the simpler procedure, will not be subjected to the more radi-

cal operations with the attending increase in death rate, and the fact of the gastroenterostomy being done and the patient's condition improved will render the more formidable resections much safer at a later date if necessary.

It may seem unnecessary to state that a gastroenterostomy should not be performed where an ulcer can not be demonstrated at operation, yet many gastroenterostomies have been performed for so-called "symptomatic peptic ulcers." This has been a most important factor in bringing the operation into disrepute. Other causes of failure due to faulty surgical methods are: (a) placing the opening too close to the cardiac end of the stomach; (b) failure to bring the opening to the bottom of the stomach; (c) failure to make the opening in the transverse mesocolon sufficiently large; (d) failure to suture the opening in the transverse mesocolon firmly to the stomach wall, so that the mesocolon becoming detached, falls down on the loops of the jejunum at the point of anastomosis causing angulation with obstruction, or at intervals, regurgitation of bile; (e) failure, in making the opening between stomach and duodenum to allow for subsequent contraction of the greatly dilated stomach, with resulting narrowing of the stoma; (f) making the jejunal loop too long or too short producing subsequent kinking.

The vicious circle following gastroenterostomy has now almost entirely disappeared, and when it develops is due to failure of the new opening to function properly. The causes of such failure are indicated above.

To obtain the best results from gastroenterostomy these patients must be under medical supervision for at least six months after the operation. They should be prescribed a suitable diet, warned not to overload the stomach, and not to delay their meals beyond the usual time. Most of the gastric upsets which occur after operation, readily yield to suitable medical care directed along these lines.

Case No. 1.—This was the case of a chauffeur, aged thirty-eight, who gave a history of indigestion with pain in the epigastrium extending over four years. During the last year he had vomited frequently and had lost forty pounds in weight. On one occasion, about a year ago he vomited a cup full of bright red blood. Pain comes on almost immediately after meals and is relieved by vomiting. Radiological examination made by Dr. Burger, was reported on October 3, 1922, as follows:

"Barium meal given; oesophagus negative. Barium enters the stomach and fills the cardiac end well, but tapers down to the pars media in a funnel shape, where the meal went through the funnel opening, and did not fill in a normal way. At the pyloric end, there is a large diverticulum, which was tender on pressure. This patient was examined four hours later, and very little barium was emptied from the stomach. Seven hours later, hardly any change. Twenty-four hours later, about a third was empty. Thirty hours later, very little change. Fifty hours later, a third of the meal was still present."

Unfortunately the radiograms of this case were lost. The results of the examination of the gastric contents at this time was as follows: Free hydrochloric acid twenty-eight. Total acidity forty-seven. Lactic acid not present. Large numbers of bacteria and yeast cells present. Much mucus and a few pus cells present.

This patient had a laparotomy performed on October 4th, 1922. The condition was diagnosed by the operator as inoperable carcinoma and the abdomen closed without anything being done. The condition of the patient gradually became worse. I first saw him in consultation at the Misericordia Hospital on November 16th, 1922. He was then very weak and emaciated. His obstruction had increased to the point where no solid food could be taken, and he was vomiting several times daily. Gastric analysis with the Ewald test meal at this time showed: Free hydrochloric acid eight. Total acidity forty. Lactic acid present. Numerous diplococci and streptococci, occasional Boas Oppler bacilli, yeast cells, and a few pus cells present.

I opened the abdomen on November 23rd, and found a chronic perforating ulcer on the lesser curvature of the stomach near the pylorus. The inflammatory mass was adherent to the under surface of the liver above, and to the pancreas behind. Posterior gastro-enterostomy was performed, though with considerable difficulty due to the lack of mobility of the stomach from adhesions. The patient had a smooth convalesence and in two months had gained twenty pounds in weight. He has remained until the time of writing (Aug., 1924) entirely free from symptoms. His weight has returned to normal, and he considers himself entirely cured.

Case No. II.—A clerk forty years of age entered Misericordia Hospital, February 6, 1923, complaining of pain in the epigastrium, which was relieved by eating or taking a glass of milk, and to some extent by lying down. He first began to have pain after eating two years ago. The pain was gnawing in character and came on two hours after meals. This attack lasted two months. Six months later he had a similar attack lasting six weeks. His third attack began in November, 1922, and continued until the time of admission to hospital. The pain on his admission was very severe and almost continuous. He had been under medical treatment since November without relief. Radiograms (Fig. 1.) showed a perforating ulcer of the duodenum.

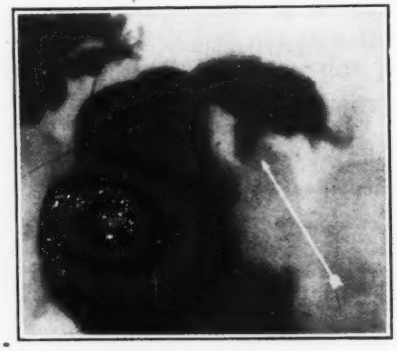

FIG. 1.—*Case No. II.*..Showing chronic perforating ulcer of duodenum. The barium can be seen extending out from the wall of the intestine in a finger-like projection.

Operation, February 12, 1923. An ulcer with large inflammatory mass surrounding it was found on the posterior wall of the first portion of the duodenum. Posterior gastroenterostomy was performed and the appendix removed.

The patient had a normal convalescence and left the hospital on the sixteenth day after operation. He returned to work a month later. Since that time (one year and six months) he has been entirely free from symptoms.

Case No. III.—An English housewife aged forty, entered the Misericordia Hospital November 7, 1923, complaining of pain in the abdomen and vomiting. She was greatly emaciated, and weak; the temperature was normal; the pulse rate 125; and its quality poor. She gave a history of first having trouble with her stomach at the age of sixteen; twenty-four years ago. At that time she was put to bed in a hospital in England for a month, and treated for ulcer of the stomach. Again two years later she was given medical treatment with rest in bed for six weeks. During these twenty-four years she suffered more or less continuously from indigestion and pain in epigastrium. She took much medicine, and was on various diets. For the past few years she had no treatment, as she had given up hope of relief from medical treatment and was afraid to have an operation. Three days ago the pain in the abdomen and vomiting became worse, and she consulted a doctor who advised an x-ray examination, which was done. Her condition rapidly became worse, the pain was very severe and the vomiting almost continuous until she was admitted to hospital. Radiograms made on admission without anything further being put in the stomach, showed what appeared to be a perforating ulcer on the lesser curvature of the stomach. As far as could be determined almost the whole of the opaque meal, given two days before, still remained in the stomach (Fig. 2).

FIG. 2.—*Case No. III.* Showing ulcer on lesser curvature of stomach. Radiogram made three days after ingestion of opaque meal. Practically none of the meal had found its way into the intestine.

When the patient entered the hospital the outline of the stomach, filling the whole left side of the abdomen was plainly visible. Gastric lavage was instituted every four hours. Proctoclysis was given with marked improvement, and it was hoped to get her in condition where one felt justified in undertaking a gastroenterostomy under local anaesthesia.

On the third day after admission the temperature dropped to ninety-six and the pulse rose to 140 and became very weak. Transfusion of 600 cc. of whole blood was done. Following the transfusion her condition improved for a time. The next day she was very drowsy and had passed no urine for twenty-four hours. That evening eight ounces of urine was obtained from the bladder by catheter. The specimen contained large quantities of albumen and granular casts. At three-thirty in the afternoon she had a convulsion which lasted two minutes. The drowsiness rapidly deepened into coma and she died at midnight.

Autopsy, performed by Dr. Trainer, revealed four ulcers on the stomach (Fig. 3.) one of which was of the perforating type. The pyloric ring was contracted, but on slight pressure admitted the index finger; no organic obstruction present. There was no evidence of malignancy in the margin of the largest ulcer. The kidneys were the seat of acute haemorrhagic nephritis. Other organs negative.

FIG. 3.—*Case No. III.* Photograph of stomach showing multiple ulcers. Note the large ulcer shown in the left lower corner. A portion of the margin of this ulcer removed for microscopic examination showed no evidence of malignancy.

To attempt a partial gastrectomy or sleeve resection in Case No. 1, would, in the author's opinion be to court disaster. This patient was weak and emaciated. With the degree of pyloric obstruction present, and the patient vomiting several times daily, there was little hope of improving his condition. It would have required a prolonged dissection to free the stomach from its adhesions to surrounding structures before resection and anastomosis could be performed. This man is now, after a year and nine months, free from symptoms. He has about a seventy-five per cent chance of remaining well[4]. However, should his ulcer give him further trouble, it will then be a comparatively simple matter to go in and do a resection. With the patient in good condition, the inflammatory mass surrounding the ulcer much resolved, the gastroenterostomy already functioning, a partial gastrectomy can be done, and the ends of stomach and duodenum closed at very slight risk to the life of the patient.

Case No. 2 after one year and a half is still in good health and he has at least an eighty per cent chance of remaining so. Should the ulcer recur, however, it can then be resected at small risk.

Case No. 3 illustrates the results of deferring surgical treatment beyond a reasonable length of time. Not only was the outcome fatal, but the greater part of this patient's life, from the time she was sixteen until she died, was spent in misery. Another point of interest about this patient was that though she had a gastric ulcer for twenty-four years there was no evidence of malignancy.

What was the cause of the acute nephritis? Was it connected with the retention of barium in the stomach for two days? I do not know.

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CHRONIC MYOCARDITIS

A CLINICAL REVIEW

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DURING the five years ending December 31st, 1923, there were admitted to the medical wards of the Montreal General Hospital, 211 cases, diagnosed clinically as chronic myocarditis. This number amounted to 2.5 per cent of the patients with all forms of heart disease.

The diagnosis was based on the symptoms and clinical findings of pain, dyspnoea, palpitation, œdema and cardiac irregularity in those cases in which the heart muscle had ceased to be capable of fully performing its function, while no organic valvular disease could be detected.

Christian[1] in his very concise article in 1918 considers the term "chronic myocarditis" an inadequate one and would designate the disease as one characterized by cardiac decompensation and insufficiency.

The complaints of these individuals on presenting themselves were remarkably constant, 92% had dyspnoea on exertion; 55% had pain over some part of the precordial region; 39% had œdema; 27% had cough, and 26% had palpitation. Weakness was complained of in only 6%.

The onset of the disease in 66% of the cases was so insidious that the patients could give no definite information as to its exact time. In the remaining 34% while a more definite date of onset could be given, in only 12% could they offer any suggestion as to the probable cause.

In this series 84% were males and 26% females. The average age was fifty-three years, but ranged from twenty-six to eighty. It is noticeable, however, that 40% of the cases occurred between the ages of forty and fifty.

In endeavouring to find a cause for this all too common, and frequently permanent disability, one is struck by the almost complete absence of any definite etiological factor. There was no history of acute rheumatic fever in any of the cases. Moderate alcoholism was admitted in 4%, and 2% had had diphtheria; and what is notable, a history of venereal disease was obtained in only 4%, while in only 1% was a positive Wassermann reaction obtained while the patients were in hospital. In 10% the so-called heart symptoms were said to have begun during an attack of acute bronchitis and in 2% with influenza. A few of these latter cases were sent in from the outdoor clinic with a diagnosis of acute bronchitis.

The clinical findings present a few outstanding features. The disease is practically afebrile. Only 4% showed a rise in temperature and this could be accounted for by a coexisting bronchitis. The pulse in all cases was rapid and in many irregular. The cardiac dulness was increased in 93% due to hypertrophy

rather than mere dilatation as was shown by the subjects which came to autopsy. The blood pressure, as a rule, was not high, 71% showed a systolic pressure below 150 and a diastolic below 100, while for the most part the pulse pressure was normal in range. A left preponderance as shown by the electro-cardiogram was present in 46% while in 35% there was auricular fibrillation.

The blood findings were practically normal. Only in a very few cases was there a leucocytosis and this could be accounted for by some associated condition. In forty-two cases in which the blood chemistry was worked out, the blood urea averaged 30 mgm. per 100 cc. and the creatinine 1.5 mgm. per 100 cc. A trace of albumin was present in 73% on admission, but in many of the cases this cleared up as the heart condition improved. The urinary output was low in almost all on admission, even in those who had no œdema, but rapidly became normal while in hospital.

Cough in 54% was a source of irritation, but only in 8% was there sufficient sputum to be noted or examined. The cough would appear to be due to the congestion and œdema of the lungs rather than to any definite bronchial irritation.

As has been already noted, 40% of the cases occurred in patients between forty and fifty years of age; this, in previously strong individuals with absence of former disease, many of whom gave a history of having worked hard, suggests the possibility that the condition is one of gradual hypertrophy due to continued strain. The heart enlarges because of an inability with some defect in its nutrition to meet the persistent demand on its power. This is followed at a variable period, in most cases by a gradual, and in a few cases by a more sudden failure, to perform its full function. The result then is decompensation. Dr. F. W. Harvey, of McGill University, who has had long and extensive experience in examining athletes states that he cannot recall a case of chronic myocarditis in men who had formerly been college athletes. It is noticeable, however, that the breakdown occurs most frequently in males, and at about middle life, at a time when they are most needed by their families and by the community.

The disease when established results in more or less permanent disability. The illness of several of these patients extended over a period of several years, necessitating hospital treatment on two, to four occasions. Each patient when discharged was merely improved, to return later in a more advanced state of incapacity. Seventy-eight per cent of this series were discharged improved, and 18% died; many of the latter had been in hospital for several prolonged periods.

While the large majority of the patients improved with rest in bed and the administration of digitalis in some form, the improvement was, after all, only temporary. Most important then would seem the early recognition of the inability of the heart to fully perform the work imposed upon it. Our most efficient remedy appears to be the restriction or regulation of work and exercise in accordance with the ascertained ability of the heart muscle to undertake it.

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To learn resistance to disease is as necessary as to learn resistance to the world, the flesh and the Devil, as necessary as to learn a trade. It is an essential part of a child's preparation for life. Muscle strength must be developed by muscle use. And Sages and Saints all down the ages have taught us that moral fibre can grow only through use, that each victory helps us some other to win. A boy tied to his mother's apron strings until twenty, coddled and pampered and humoured and sheltered in all ways, has had no proper preparation to be a citizen of this worried and wrangling world at this day. It is no place for a sissy-man. And a boy of twenty who has met no infections, who has been brought up in sterilized cotton batting surroundings, has had no fit preparation to be a citizen in such a germ harried world. The first wave of infection would carry him off his feet.—D. A. STEWART, NINETTE.

CHRONIC INFECTIVE ARTHRITIS*

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THE study of the so-called rheumatoid diseases or chronic non-tuberculous arthritides is of great importance to the orthopaedic surgeon because in these diseases, he is really the medical court of last resort, and also to the general practitioner because of the disabling character of these affections and the frequency with which they are met. Although the endeavours made by investigators in the past to determine the etiology of this disease have led no further than to stone walls limiting our realms of knowledge, the apparent hopelessness of reaching beyond these limitations has led us to seek for new possibilities in other fields of research. Of all these none appears to offer more hope than the newer revelations of biochemistry.

While there may be more or less distinct etiological factors in each variety or form of chronic arthritis, a toxic infection is, in our opinion, an important etiological cause in all of them. The difficulty, however, of finding and proving the exact source of the infection, and the fact that diet seems also to play an important part in the severity of many of them; also the fact that surgical operations on the intestine have frequently had a favourable influence in many cases, strongly suggest that abnormal conditions in the intestinal canal are primarily concerned in a certain percentage of cases. The knowledge also that in not a few instances chronic arthritis is accompanied by disturbance of function in certain of the endocrine glands may also point in the same direction. Cold and exposure to dampness may frequently be contributing causes. Moreover, while a septic focus may have been the original port of entry, and the septic organisms have entered the blood stream from it, that focus may be removed and not discoverable; yet the disease may have established other foci, and have become a chronic septicaemia. This has been denied because thus far it has been impossible to make cultures from the blood in all but a few instances, but the fact that blood cultures are not obtainable at a late date when the organisms become fixed in the tissues must not be given too much weight.

It is also possible that the intestinal epithelium may not infrequently serve as a recurring portal of entry for the infecting agent. In the elaboration of this statement, we would quote from Prof. A. B. Macallum, who, in discussing the next great advance in medicine, says:

"It would seem from the experiments of MacCarrison and others on the effects of vitamine-free diets on animals, that the intestinal canal is one of the organs of the body primarily concerned. Under no other circumstances is the intestinal tract so markedly affected, for the constipation which develops is soon followed by an extensive sloughing away of patches of the mucosa through its extent. Bacteria gain free, almost direct, entrance into the blood vessels, and there ensues a hypertrophy of the pituitary and adrenal glands, with more or less atrophy of other endocrinous organs. The effects of avitaminosis on the intestine are striking because, of all the organs of the body, there is none which performs such a variety of important functions as the intestinal mucosa, and, therefore, a deficiency of vitamines in the diet must result in more serious disorders in it than may obtain in other organs. There are no other cells of the body which are subject to such an extreme variety of conditions and to such a constantly changing environment as are the epithelial cells of the intestinal mucosa. They undoubtedly react to a number of these conditions and neutralize the toxic products:

*Abstract of an address delivered before the Medico-Chirurgical Society of Montreal.

these cells constitute thus the first line of defense of the organism against disease."

What changes the epithelial cells of the mucosa may undergo, we do not know, and concerning the processes involved in their activities we have only a very limited knowledge. It is not, however, a new suggestion that in the intestinal tract may sometimes lie the exciting cause of the infective arthritides, and the work of Lane and more than a score of other surgeons appear to favour this doctrine.

There appears also to be a definite relationship in some cases between the character of food taken and the incidence of symptoms of arthritis, although the respective rôles of action of the three foodstuffs, protein, fat, and carbohydrate, in these affections have not yet been thoroughly worked out. A number of patients suffering from chronic arthritis, if placed on a sharply reduced intake of food, will show an improvement within a period of from one to four days, although this improvement may be of a temporary character only.

An investigation conducted at the Toronto General Hospital has led Fletcher to believe that in many cases a defect in sugar metabolism is associated with the cause of arthritis. Clinical experience in Montreal apparently gives some support to this suggestion, for in some cases a diet composed of an excess of carbohydrates may be followed by an exacerbation of the arthritis. Further, more than two years ago an investigation was conducted by Dr. Rabinovitch in the Montreal General Hospital, who found that in sixty-two cases of chronic arthritis 39 per cent showed evidence of a diminished sugar tolerance. Dr. Lawrence Rhea has also drawn attention to an article by Grove and Vines in the *British Medical Journal*, 1921 and 1922, which suggests that calcium is reduced in the blood of those suffering from rheumatoid arthritis. Physiologists tell us that the regulation of calcium metabolism is controlled by the parathyroid glands, and that in cases where blood calcium is deficient the stimulation of calcium metabolism by the administration of parathyroid is indicated. Since these papers appeared Dr. Rabinovitch has examined the blood of a number of patients suffering from chronic arthritis, and found that about 33% of severe cases of infective arthritis showed a diminution of blood calcium.

There is another suggestion of extreme interest. The parathyroids govern calcium metabolism. Interference with the functional activity of these glands may increase the patient's susceptibility to the deleterious effects of toxins derived from the alimentary canal. What, may we ask, is the relation between injury to the parathyroid glands and some of the cases of infective arthritis? Is it possible that in some of these the initial lesion is in the parathyroid and that this opens a door of infection in the intestinal mucosa ?

In order to study the pathological conditions present, and the symptoms met with in the chronic arthritides it has been deemed advisable by many writers to divide them arbitrarily into types. The Goldthwaite school classified them under the terms hypertrophic, atrophic, and infectious. We do not approve of this classification but do not think the time is ripe to suggest any other. This lack of approval of the Goldthwaite classification is based on the fact that we believe that the etiological factor in all cases, no matter what the clinical or pathological characteristics may be, is an infection. For this reason we question the advisability of separating one group as being infectious, thus suggesting that other groups are not primarily due to infection. Again in Goldthwaite's atrophic form there is hypertrophy although it may be limited to the soft parts. Furthermore in the hypertrophic type there is both hypertrophy and coincident atrophy of cartilage and bone.

It is frequently stated that the chronic infective arthritides may be seen either as a mono-articular disease or as a poly-articular disease. In our experience it is nearly always, if not always, the latter. The onset may appear after or during some local acute infection of the tonsils, sinuses, or other parts. In some cases the onset is insidious and does not bear any apparent relation to any extraneous infection, and the symptoms may be slight but persistent over a long period; in other cases a joint or joints may become swollen or hot, the joint capsule may be distended with fluid, or the maximum intensity of infection fall upon the periarticular tissues. Pseudo-crepitus is an important symptom in all types of the chronic arthritides.

It is probably due to changes in the joint itself with coincident loss of synovial fluid. Any joint may be affected, from the largest, such as the hip joint, to the smaller such as those of the tarsus, carpus, mandible, and spine. The incidence is at any age. In childhood we may see it as Still's disease. In mid-life we see it quite frequently although by no means exclusively in the form termed by the Goldthwaite school, "atrophic arthritis." In later life we often see it as the hypertrophic or degenerative form.

Chronic arthritis is met with in the rich as well as the poor; in the well nourished as well as the ill nourished. It presents, however, certain characteristics under certain conditions. The hypertrophic or degenerative forms are more frequently found in the florid, heavy, or well nourished, whose blood pressure is high, and in whom arterio-sclerosis may be present, whereas the atrophic or proliferative forms are found more frequently in those who have undergone strain, toil, and poverty and in whom nutrition is bad.

Not much has been added to our knowledge of the pathology of these conditions since the investigations of Nichols and Richardson, and the studies of Thomas McCrae and of Strangeways. Indeed the observations of pathologists have not been of much service in the study of these affections. We believe that further advances in our knowledge are most likely to be made in the laboratory of the biochemist.

In making a diagnosis of chronic arthritis, tuberculosis must always be kept in mind. This is not because other lesions may not have to be eliminated, but because of all the so-called non-infectious arthritides tuberculous arthritis is the most common. A salient point of difference between the two is that tuberculosis rarely affects more than one joint whereas the infective arthritides rarely if ever affect only one joint. Again in tuberculosis, muscular atrophy is early and marked, whereas in the infective arthritides it appears later and is usually not so marked. Charcot's joint often simulates those cases of infective arthritis where there is much hypertrophy. Indeed Osler said it is anatomically similar to chronic arthritis deformans, but in Charcot's disease there are other symptoms which should prevent any mistake.

There should also be no difficulty in distinguishing between a case of chronic arthritis and acute rheumatic fever which latter affection is characterized by multiple arthritis and a special tendency to involve the heart. There is no such thing as chronic rheumatic fever.

As to treatment, until our knowledge of the etiology of the infectious arthritides is more complete we cannot hope to base our treatment on a rational and scientific foundation. If many of the rheumatoid arthritides are primarily due to an infection from some extraneous focus, our first effort in the treatment of these conditions should be to find the source of infection and treat it. For this reason the mouth, the throat, the several nasal sinuses, the ear, the genito-urinary tract, and the abdomen may be subjected to rigid examination. It has been suggested by Grove and Vines that occasionally the administration of parathyroid may cause a hidden focus to become apparent. It is, however, to be remembered that even if there were only a single focus at first, before it has been found and removed the infection has probably produced more foci, and the most effective procedure is to increase the general resistance which may in some cases be effected by the use of an autogenous vaccine.

Diet regulation undoubtedly forms an important part of the treatment in many of the infective arthritides. Dietary restrictions, however, must be determined for each individual case. The effect of any diet prescribed must be carefully watched, and repeated examinations of the blood and the urine made. We have already pointed out that many observers place importance on the fact that there is a lowered sugar tolerance in this as well as in some other chronic infective conditions. This may indicate a defective metabolism and may also demand careful readjustment of the diet.

For years salts of iodine and frequently iodine itself have been used with limited success in the treatment of these affections. This success justifies their continued use as adjuvants to other forms of treatment.

In the way of local treatment, conditions are so variable in the infective arthritides that no rules can be laid down; careful consideration must be given to each affected joint, pain must be prevented or assuaged, and in some cases rest must be secured. In others, massage

and more active treatment cautiously undertaken may be desirable. The really serious cases demand study in a hospital and treatment based on the result of such study. While we have no specific remedy for these affections, improvement is certain in the majority of all patients in whom general and local treatment can be carried out.

INDUSTRIAL OCULAR INJURIES

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THE final statement on the treatment and the management of ocular injuries has not been given. Such is evident from the diversity of opinion expressed by men who, from a wealth of experience and maturity of judgment may be classed as authorities.

Haab[1] has advised the removal of all intraocular foreign bodies by way of the anterior route, while Sweet[2] strongly denied the wisdom of such a procedure. McReynolds does not hesitate to insert the tip of the magnet into the vitreous while other operators think the trauma produced by such a procedure most as dangerous as the retained foreign body. Such wide differences in opinion may be observed in many other phases of our subject and so long as these differences be honest, we feel justified in bringing this subject before you with the hope that by friendly discussion it will be possible to more nearly perfect and improve upon many of the things we will have to say in the following paragraphs.

Once one is thoroughly interested in the question of ocular injury, one will find it most absorbing. To begin with if we may be allowed to repeat what we have had to say in a previous paper about the history and the keeping of records. In our office we have developed a special history form covering the following points:—(1) When the man was injured; (2) The type of work he was engaged in; (3) Treatment he has received; (4)Notes on previous injury or trouble he may have had with his eyes. The vision in each eye is recorded at the initial visit, also at later visits, and upon discharge. A careful record is made of the condition found at the initial examination and of the subsequent progress of the case. We mail to the company employing the man injured, a copy of the original record, also a copy of the notes made at subsequent visits and of all x-ray and laboratory reports, the result being that when the case is closed the company has an exact duplicate of the record as it is on file in our office. Such a scheme has proven most satisfactory. It enables the shop to keep tab on their cases and to know the progress they are making. It at once creates and maintains an interest in the case that would not be possible otherwise.

In the year just passed we have been impressed with the number of patients, who, following minor injury suffer great and permanent loss of vision. The one great factor here being the dense scar and astigmatic distortion following extensive abscess of the cornea; most often seen as an ulcer serpens.

We believe that in a large series of cases the number of patients suffering permanent impairment of vision following a minor injury will be equal to or even greater than those with permanent depreciation following the major injuries, such as intraocular foreign bodies, etc.

We have recently published[3] an analytic account of 1,028 consecutive injury cases seen in our office in a period of two years, which shows many points of interest in a study of ocular injuries. For convenient reference we will copy in the present paper the tabulation made of this group of cases.

It was noted that 92.1% of all the cases seen

TABLE OF 1028 CASES

Type of Work When Injured	Number of Cases and Per cent	Type of Injury		X-Ray		Magnet Operation		Iridectomy		Traumatic Cataract	Eyes Enucleated	Blind eyes not Enuc'eated
		Minor	Major	Negative	Positive	Successful	Failed	Total No. of Cases	Resulting Vision Normal			
Emery Grinding....	408 or 38.8%	406	2	3	0	0	0	0	0	One lens dislocated	0	1
Steel, Lathe, Chiseling, Riveting, etc..	447 or 42.5%	389	58	80	20	19	1	21	5	16	15	6
Stone Cutting.....	54 or 5.1%	53	1	1	0	0	0	0	0	0	0	0
Wood Worker.....	36 or 3.4%	32	4	1	0	0	0	0	0	1	1	1
Glass Injury.....	16 or 1.5%	11	5	4	0	0	0	2	0	0	2	0
Burns, moltenmetal, steam, caustic, etc.	57 or 5.3%	50	7	5	0	0	0	0	0	0	4	1
Electric Flash.....	8 or 0.7%	8	0	0	0	0	0	0	0	0	0	0
Belt Injury.....	2 or 0.1%	0	2	2	0	0	0	0	0	0	2	0
Total.....	1028	949	79	96	20	19	1	23	5	17	24	9
Summary.....	92.3% of all cases were minor injuries; 7.6% were major injuries.			11.2% of all cases required an x-ray 17% were positive.		95% of the magnet operations were successful in removing foreign body.		21.7% had normal vision following iridectomy for prolapse of the iris.		1.6% had traumatic cataracts.	3.3% of all cases were either blind or enucleated, or 43.2% of the total number of major injuries, 68.5% of the blind eyes were removed.	

NOTE:—This table is copied from our article "Injuries to the Eye with Report of 1,051 Cases," published in the *American Journal of Ophthalmology*, May, 1921, Vol. 4, No 1.

were minor injuries. That 78.1% of all the cases come to us with an injury of the cornea. To have in mind the importance of these figures, one must recall that the cornea is a non-vascular tissue and resists infection poorly. The epithelial or outer layer acts as nature's barrier to infection and does not permit organisms to pass and infect the deeper layers of the cornea. With this protecting layer injured or destroyed in 78.1% of all cases consulting us for ocular injury one can see why the incidence of corneal infection is common and is therefore worthy of special mention in the discussion at this time.

One must not think that the only cases worthy of attention are those with retained intraocular foreign bodies or perforating wounds with prolapse of the iris. True these are serious cases and require the best talent, but how about the other 92% with minor injuries, in which there are no perforating wounds or retained intraocular foreign bodies and in which there is no great loss of vision; should they be "passed over" as unworthy of an oculist's attention?

Treatment of Minor Injuries to the Cornea.—Any injury to the cornea always carries with it serious possibilities and must be treated as promptly and as carefully as many of the major injuries.

All foreign bodies must be removed with sterile instruments and with the least possible trauma to the cornea and with the proper anaesthesia. The foreign substance must be completely removed. Any stain or pigment left at the margins of the wound will keep up irritation and cause the patient a great deal of discomfort. Following this removal we instil two or three drops of oscol argentum (one of the colourless colloidal silvers). This will not stain the exposed fibres of the cornea and is not too irritating. In other cases 5% aqueous solution of mercurochrome 220 is used. As a rule we do not bandage the eye except in those cases with considerable dread of light. The case should be seen on the following day and observed for infection. If, at this visit, the case shows some slight infection we carefully curette the ulcer, treat the lid lightly with 2% silver and give oscol to be used at home. It has been observed in many cases that an infection of the cornea will not progress satisfactorily so long as the patient remains at work. Complete rest is often a most important factor in the treatment of an ulcer of the cornea, the pupil should be dilated with atropine and the patient requested to remain off from work or even to enter the hospital. In those cases with evidence of more severe infection we follow the curetting with a local application of Lugol's solution to the ulcerated surface or in some rapidly progressing cases the margins of the ulcer are touched with the actual cautery. The Lugol's solution used is a special formula, that is, crystals of iodine 25%, potassium iodid 50%, water ad, qs. to 100. The following gives in detail the mode for applying the same which is after the method of Vierhoff.

The eye is first anaesthetized with 2% butyn or holocain. The patient is placed in a reclining position and the lids retracted by a speculum. The ulcer should now be carefully curetted, clearing it of all sloughing corneal tissue. During this interval the cornea has dried a bit losing its surface moisture. This is a detail of some practical importance for the next step in our treatment is to apply the Lugol's solution to the ulcer heaping it up or puddling it over the ulcerated surface. This is accomplished most satisfactorily by means of a wooden applicator which is first dipped in the solution and then applied to the ulcerated area. If the cornea has not lost its surface moisture the solution may be drawn by capillarity out over the normal corneal epithelium which for obvious reasons is not to be desired. We allow the ulcer to remain covered with the solution for five minutes following which it is washed off with boric acid or normal saline. If the case is quite advanced and shows considerable pus in the anterior chamber it is our practice to first apply the Lugol's solution freely and then using a small cataract knife, make a stab wound through the base of the ulcer, thus allowing the aqueous to escape and carry with it the greater part of the hypopyion. All of these cases have previously a well established iritis with a posterior synechia. This, together with the fact that all serpigenous ulcers occur near the centre of the pupillary space, reduces to a minimum the liability of a prolapse of the iris following the emptying of the anterior chamber. What we

have just described may be repeated as often as every second or third day. In the interval the usual treatment of hot bathing, atropine, and 2% silver to the conjunctival surface is carried on.

In cases where the offending organism is shown to be the pneumococcus, a 2% solution ethyl hydrocuprine is advised. This should be instilled into the conjunctival sac. We have on several occasions used the straight tincture of iodine, applying it directly to the ulcer allowing it to dry three to five minutes and then with cotton loosely wound on an applicator repeatedly sponge off with boric acid until the surface of the ulcer is a light brown showing that all excess of iodine has been removed. This treatment is not too irritating and is quite efficient.

For the past three years we have given sterile milk intra muscularly as routine treatment to all cases of severe ocular infection beginning with 3 cc. and increasing to 4 cc. and then 5 cc. at three to five day intervals. We are convinced that this therapeutic measure is of considerable value. We can as a rule following the injection expect a 50 to 100 per cent increase in the leucocyte count. The pupil will often dilate more satisfactorily and the patient will tell you the pain in his head is much better.

A well established and advancing corneal abscess with a complicating hypopion and iritis is a desperate case.

1st.—Because these patients suffer great pain.

2nd.—Because of the possible loss of sight, and even the loss of an eyeball. It is for this reason that we would call your attention to the prevalence of corneal injury, and the great susceptibility of this tissue to infection, and have given in considerable detail our plan of treatment in such cases. At best the end result usually nets a considerable loss of vision because of the dense scar in the pupillary space and distortion of the cornea. We have besides the loss of sight in these cases a great economic loss of time and a heavy expense. Could we assure ourselves of a method of prevention of corneal infection following injury, we would have a guarantee of a prompt and satisfactory recovery of all minor injuries to the eye or in other words 92.1% of all the ocular injuries seen in our office. This is certainly a goal worthy of our best efforts.

The remainder of this paper will be confined to a consideration of the value of the x-ray and giant magnet in ocular injury.

Value of the X-ray.—Dr. Campbell was one of the first to use the x-ray as a means of diagnosing a metallic body in the eye. A man was seen in the office in the early part of 1897, who gave a history of injury to the right eye a few days previously while hammering on steel. The eye was deeply inflamed and the vision reduced. An x-ray taken by Mr. S. M. Keenan, Eloise, Michigan, gave a positive shadow and the foreign body was removed with a magnet. This was a few months over a year from the date that Roentgen first announced the discovery of the x-ray and since this we have all seen great strides made in this method of diagnosis. It is now an axiom that all cases with a history of injury to the eye must be regarded as retaining a possible intraocular foreign body and such may require an x-ray. This is particularly true if the case gives a history of injury while working with metals, such as, hammering, chiselling, etc. In our series 80 per cent of the cases requiring an x-ray occurred in the metal group and 100 per cent, or all of the positive cases, occurred in this group. With this in mind one can more intelligently advise concerning the need for an x-ray. Certainly we must x-ray all doubtful cases who give a history of injury while working on metals. On the other hand, our experience of not a single positive x-ray in a study of 408 eye cases injured while working on the emery wheel would cause us to be a bit more reluctant about advising x-ray in cases giving such a history. It may be stated, however, that an x-ray report is not a panacea for all the troubles an oculist may have. In support of this statement, we wish at this time to recite a few instances that we have encountered in the past months where the x-ray has been quite misleading.

The first case Mr. C. came to our office with a history of injury the day previous while working on a lathe. Our examination showed a small scar on the cornea and a small, round and sharply defined opacity in the lens. The vision was normal and the patient was having but little pain. The man was referred for an

x-ray, which report indicated an intraocular foreign body near the base of the iris in the lower quarter. A history of working with steel, scar on the cornea, opacity seen in the lens and positive x-ray report. It seemed quite conclusive that the man had an intraocular foreign body and the patient was accordingly sent to the hospital where he was exposed to the magnet with negative result. At this time a small pigmented area was noted near the free margin of the lower lid just under the conjunctiva. This had the appearance of the root of a misplaced lash, when investigated was found to be the so-called intraocular foreign body we were looking for. This is a case where a positive x-ray report could have led to a most unpleasant experience. In the following a serious mistake could have been made on a negative report.

Mr. W. S., case No. 41765 came to our office complaining that he had had the right eye injured a few hours previous while hammering on steel. Our examination showed a small area on the cornea that was stained with fluorescein. Also there was a small dark spot on the iris near the pupillary margin which we considered was very probably a foreign body. This moved freely with each contraction of the iris. The pupils were equal in the two eyes and responded promptly to light and in accommodation. The patient was not suffering the slightest pain and the eye was not inflamed. The vision was 6/10 normal. We explained to our patient that we believed the dark area was a foreign body. To this he took strong exception, stating that he was quite positive that the dark mass we described had been there since he could remember. Finally the patient agreed to having an x-ray taken which to our chagrin was reported as negative. Not being satisfied we exposed the eye to a small hand magnet and were able to show quite clearly that the suspected mass was affected by the magnet, and the foreign body was accordingly freed from the iris and removed through a corneal incision.

In seeking an explanation as to why the steel did not show in the x-ray, it would seem quite possible that as the plate was taken there occurred a contraction of the iris which necessarily carried with it the embedded steel. Such a movement might easily blur the shadows and thus cause a misinterpretation of the plate. With this in mind we would advise that the iris be immobilized by the use of homatropine before attempting to examine it by means of the x-ray.

In the latter case it was possible to take issue with the negative x-ray report, as we were able to observe that the suspected mass moved when exposed to the magnet.

Value of the Magnet.—It can then be stated that the value of the magnet lies first, in the aid it gives us in making a diagnosis as in the cases just cited, and second, in the indispensable aid it affords in the removal of intraocular foreign bodies. Credit for first having used the magnet for the removal of intraocular foreign bodies is given to Fabricius in 1656, then follows Morgagni in 1779, McKlown 1874, and Hirschberg 1875.

Since these early dates the value of the magnet in such cases has been established beyond a point of argument. We find oculists now differing only as to the best type of magnet and as to method of procedure. In our work we have used the giant Victor magnet and of late years have found ourselves removing more and more of intraocular foreign bodies by the anterior route. The hazard of the posterior route, namely, detachment of the retina and loss of vision, may be as some authors protest, very small, but nevertheless it is real, and it is just such experiences that cause us to-day to lend our support to those who favour the anterior route for the majority of their cases. However, we cannot support Haab who says that we should always remove an intraocular foreign body by the anterior route. In the following paragraphs we will discuss some of the problems that occur in the removal of steel as it is found in the various anatomical divisions of the eye and its appendages.

In the lids.—A small piece of metal may be completely buried in the tissue of the lid and because of the close approximation to the eyeball may cause some confusion in the interpretation of the x-ray as was seen in our case. In removing such foreign bodies the magnet will as a rule be of little value until a full surface of the foreign body has been carefully freed by sharp dissection, after which our task can be easily completed with the magnet.

In the cornea.—Again here we have on

several occasions found the x-ray at fault, giving negative reports when further investigation showed a small foreign body strongly intrenched in the deeper layer of the cornea. Such a case may give us considerable trouble before we are able to dislodge the foreign body. The magnet will be of little or no aid until we have dissected free the full length of the foreign body, after which it will be possible to lift it out of its crater either by means of the magnet or with a spud. Ofter such a foreign body lies near the anterior chamber and in the dissection may be pushed into the aqueous. Should such an accident occur, it is then necessary to remove the foreign body through a keratome incision of the cornea.

In the aqueous.—That any metal which is in contact with the fluids of the eye should be promptly removed stands as one of the fundamental laws in this work. The penalty for non-observance may follow promptly as a siderosis and loss of vision in the injured eye or even a sympathetic involvement of the other eye. Given a magnetizable foreign body in the aqueous one may be able to remove the same through the point of entrance. If this be too small or too firmly healed we must then open the anterior chamber with a keratome. It is often a distinct advantage to have previously magnetized the knife by a few minutes contact with the tip of the magnet before making our incision. The magnetic attraction in our knife will then cause the foreign body to move to the point of our incision and if the piece of metal is quite small it may follow out as the knife is withdrawn, or at least adhere to the lips of the wound and be easily removed.

In the iris.—Making the diagnosis here is not always so simple. Previously in this paper we pointed out one of the difficulties that may be experienced with the x-ray in these cases.

In examining the eye by focal illumination, one may question whether a dark area on the iris is a small hole or is a foreign body. This can quickly be determined by simply trans-illuminating the eye. If the area in question is a perforation or dehiscence in the iris it will show as does the pupil a bright red reflex, while the reflex is not seen in the case of a foreign body. It should be noted, however, that in the coloured races the fundus is often so dark as to give a very poor or even no reflex through a small perforation in the iris. In such cases exposure to the magnet will be of value in making the diagnosis.

In trying to dislodge a foreign body from the iris by the use of the magnet, one must observe certain precautions; first, the current must be turned in gradually so as not to suddenly drag or tear the iris. Also it should be so arranged that all current can be quickly cut out either by a foot control operated by the surgeon or by a switch attended to by the assistant. Prompt action here may avert a bad tear or disfigurement of the pupil; second, it is preferable not to open the anterior chamber until the foreign body has been freed from the iris and lies in the aqueous. True this is not always possible and one may be obliged to disengage the foreign body by inserting into the anterior chamber a strabismus hook, the heel of which can be placed in contact with the magnet. This is a very valuable procedure; for by rotation of the intraocular end of the hook about the heel and the magnet tip as a fulcrum, one is able to accurately control the course travelled by the steel as it is freed from the iris, also as it is being removed from the anterior chamber; third, if one is so unfortunate as to get a prolapse of the iris through the incision, it must be either carefully replaced or the prolapsed portion excised. In no case is it permissable to allow the iris to remain protruding between the lips of the wound. This last statement applies to a prolapse which may result at the time of operation, or as the result of an injury.

In the lens.—There is one exception to the statement that any metal which lies inside the eye must be removed at once and this is found in those cases where there is a small piece of steel completely embedded in the lens and having no contact with the fluids of the eye. In such cases we prefer to wait and if a cataract forms to remove both the lens and the steel at one and the same operation. In other cases the changes in the lens do not progress, and in which case we would not attempt a removal of the steel.

In the vitreous.—In those cases with steel in the cornea, in the aqueous, in the iris, or in the lens, the choice of method would seem to be quite clearly indicated, that is, they should be removed anteriorly. Certainly oculists are

more nearly agreed here than they are on those cases where the steel lies in the vitreous.

Here the question is often asked, "shall we remove the foreign body through the cornea (that is, the anterior route), or shall we remove the foreign body through the sclera (the posterior route)"? We believe it is impossible to answer this question until one has carefully studied all the facts at hand in the case. A large number can be removed better through the cornea, but still a small number should be removed through the sclera. In making a choice of the method to be followed one should consider, first, the point at which the foreign body has entered the eye, the injury done to the lens, and the amount of vision remaining. This along with a consideration of the localization of the foreign body, its size and shape, will determine the method of choice for its removal. In dealing with recent injuries it is a good working rule to remove when possible all foreign bodies through the wound of entrance, that is, if the foreign body has entered through the posterior route perforating the sclera and is lodged in the vitreous, we will then remove the foreign body through the sclera at the point of the perforation, while if the foreign body has taken the anterior route perforating the cornea and is lodged in the vitreous the procedure then is to draw the steel forward and remove it by the way of the cornea, either through the wound of entrance or by a keratome incision.

When we realize that seventy-eight per cent of ocular injuries occur in the cornea, we can then see that the great majority of the intraocular foreign bodies will be removed through the cornea.

The advisability of the anterior or corneal route may be questioned in the case where the lens had escaped injury and the foreign body in the vitreous is shown by the x-ray to be quite large and irregular. However, this objection is more hypothetical than real for one can hardly conceive so large and irregular a missile passing through the anterior segment of the eye to reach the vitreous and not carry in its course grave injury for the lens and its appendages. To repeat, the hazard of the posterior route lies in the fear of detachment of the rentia following our scleral puncture, while that of the anterior route lies in the danger of injury to the normal lens. It is then clear that if the sclera, choroid, and retina have an open perforation as the result of the injury little can be added by the removal of the foreign body through this wound. In the same way removal through the cornea can add no new disaster if the lens has been involved sufficiently to cause a cataract at the time of the injury.

It is self-evident that there can be no objection to the posterior route in the case of a blind eye.

Summary

1.—We wish to emphasize the great importance of proper treatment for minor injuries to the eye.

2.—That 92.1% of all the industrial injuries seen in our office were originally minor injuries.

3.—That many of these show great loss of vision because of opacity of the cornea following infection.

4.—The cornea suffered injury in 78% of our cases.

5.—That all corneal injuries should be seen promptly by a competent oculist and closely followed and observed for infection.

6.—We would advise the removal of an intraocular foreign body over the posterior route only in those cases with an open wound in the sclera through which the extraction can be made, and in those cases where an attempt at removal over the anterior route has failed.

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HOW TO PREPARE AND TO DELIVER A PAPER TO A MEDICAL SOCIETY*

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HAVING listened for several years to the delivery of papers before this and other societies, I have from time to time tried to formulate a code of rules which would assist a member in preparing an address for an audience such as this. I have asked myself what makes the difference between a paper well prepared and well delivered, and another which, though given equal thought and care has yet failed to interest the audience. Into the subject matter of a composition I will not enter. Each man, given a choice, will of course decide on a theme with which he is familiar, on which he has worked, and one which is likely to be of interest to those in front of him.

Many of the papers are designed with a dual purpose. First for delivery by the spoken word, and secondly with a view to publication should the reception be favourable. Now, strange as it may seem, few papers prepared in a form adapted to publication are suitable for reading aloud. I will try to give you a reason for this. A published paper should, to be of value, have a bibliography with notes indicating the source and extent of information available to the writer. The reader of the journal if he is interested, can identify the views of others quoted by the author. If, on the other hand, he wants to get to the subject matter, he can skip the bibliography which is after all only an introduction. The paper that is read aloud may lose much of its value through too lengthy a reference to past writers especially if it forms a preface.

For one thing the audience has no way of verifying at first hand the quotations. Indeed those who are going to take part in the discussion have probably looked up the authorities before coming to the meeting. In the second place many members will become tired or bored trying to follow the reasons for a large number of very loosely co-related statements or theories. Consequently when the time comes for the speaker to give his own views, he finds that he has lost his grip of his audience. Some good lecturers quote authorities, as and when, they need them, but they are sparing in their quotations, and they never wander very far from the subject matter. By all means, if you intend or hope to publish your paper prepare a bibliography, but do not inflict it on your audience.

No speech and no paper was ever spoiled by being too short, but many have suffered from prolixity. My ideal is to leave my audience with a lingering regret that I had not gone on a little longer. Prepare your papers, prepare as long a paper as you like, and then revise it. Revise it with a blue pencil, and with two mottoes before you. "Brevity is the soul of wit," and "Precise knowledge puts an end to all conversation." When you have got your paper to this stage, proceed to revise the English; see that your sentences run smoothly; if similar terms have to be used frequently, consult that most valuable aid, Roget's *Thesaurus*, in order that the same word may not be used time and again.

You must then read your paper aloud. Do it at home. Read it until your delivery is fluent and your punctuation correct. Note whether you come within the time limit or not; if you exceed that limit, cut again. If a good speaker in a pulpit can in twenty minutes point out the way to eternal salvation, surely you can tell how to perform an operation, or ameliorate a disease in a similar length of time.

Never apologise for your address, either at the beginning or at the end. To me there is nothing more offensive than to be told by the speaker that he had hurriedly prepared his paper a short while before. If a group of intelligent and educated men pay you the compliment of coming to listen to you, the least

*Presidential address delivered before the Winnipeg Medical Society, May 16, 1924.

that you can do is to offer the very best constructed material that is at your command, seeing that you volunteered for the work. If your paper is badly prepared, you insult your audience by telling them that you gave no time to it. If you say nothing in the way of apology, though they recognise that the paper is poor, they will give you credit for doing the best that you could, and your stock will be higher. Besides your apologies may appear as a lame attempt to pay yourself a compliment. I have never yet heard a speaker at one of these meetings say that he had spent an immense amount of time in preparing and polishing his paper, and then apologise for it.

Do not make your paper so long that you have to race over it. Your audience wants to take breath just as much as you do. There is nothing more tiring than to have to listen to a paper delivered at high speed, and without time for rest or relaxation. If you want ideas to sink in, deliver them slowly and forcibly. You have two objects in preparing a paper; first to propound some new method or idea; secondly to elicit a healthy discussion. If the delivery is too rapid, members of your audience will not have time to formulate their views as you sweep them along, and though applause may be genuine, you will get neither criticism nor support.

Doctors are grave and dignified people, slow in thought and deliberate in action. They are not hustlers, and they do not like to be hustled. Besides if your speed of delivery is rapid, you will not be able to take your eyes off the paper. If you cannot look up, then you cannot see how your paper is being received. It is always wise to have a few short cuts marked in your paper; that is, places where you can leave out a paragraph or an example, without spoiling the sense. If on looking up on two or three occasions you surprise several people yawning either behind their hands or openly, then you may be sure that the room is too hot, or your paper is too cold. If you find little groups of two or more in earnest conversation then you have failed to secure their attention; the sooner you can bring your paper to a close the better.

Do not be hurt, because the fault is always with you. Your subject may have been too abstruse for tired men; your delivery may have been poor or monotonous; your paper too long. One thing you must remember; you set out to interest a group of men, and you failed to do so. Engrave that on the tablets of your memory, and do not overlook it when you prepare another address.

Do not stop a written paper to give verbal illustrations. If they are worth reporting, write them into the pages before you. In this manner you will not break the even delivery. It is a very difficult thing to come back to the written word, because you may have finished your illustration on a wrong note and in a halting style. It frequently looks as if you had been driven back to reading because the flow of your ideas had stopped. Besides it uses up time which you had not included in your calculations. If you are at the beginning of the evening it is selfish, and may spoil the later papers or discussions. If it is at the end, then the members are probably chafing to get away, and will give you scanty attention.

Finally when your paper is ready, read a page of it, and then read a chapter of the Bible. Ask yourself if your ideas are as clearly and tersely put as that best example of the English language.

Acute Yellow Atrophy of the Liver Following Neo-Arsphenamin Injections.—W. H. Gordon, Detroit, and M. S. Feldman, Ann Harbor, Mich., are now beginning to make studies of liver function tests before instituting any form of drastic treatment. They had used large doses of mercury and neo-arsphenamin simultaneously, and felt that this may have been responsible for the death of a patient. In looking over records of a series of cases in which similarly drastic treatment was instituted and in which they had had no similar experiences of acute yellow atrophy, it again brought to mind the question of preexisting pathologic changes in the liver made worse by combined treatment of mercury and arsenic in large doses.—*Jour. Am. Med. Ass.*, Oct. 25, 1924.

Case Reports

A CASE OF TERTIAN MALARIAL FEVER FOLLOWING AN OPERATION FOR APPENDICITIS

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In July of this year, we found a case of tertian malaria in southern Saskatchewan. Neither of us had ever before seen malaria, though one of us has been in practice twenty-eight years. There are some points in our case which appear to be worth recording.

The patient, a rugged woman of thirty-five years, was taken suddenly sick on July 7th with abdominal pain. Seeing her within a few hours of the onset of the attack, we diagnosed appendicitis and urged immediate operation. The following day she was in great pain and was induced to enter the local hospital, where we removed a much thickened and acutely inflamed appendix. The patient recovered smoothly from the anaesthetic and the early days passed without unusual incident. On the 8th day we were advised that the patient had suffered a severe rigor; the temperature was 104° and the pulse rapid and small; this was succeeded by profuse perspiration, and a few hours later the patient was comfortable, with temperature and pulse normal.

This disturbance was repeated on the second day following the first attack and again on the fourth day. Further study of the case revealed that the spleen was enlarged, the red blood count was 3,100.00, the leucocytes 8,500 and the haemoglobin 60%. In the blood the plasmodium vivax was easily demonstrated in a specimen taken just before the onset of the fourth attack. This finding was later confirmed by Dr. Fred Cadham, head of the bacteriological department of the University of Manitoba.

The fourth attack subsiding, the patient was given quinine, forty-five grains the first twenty-four hours, reducing ten grains per day until the daily dose was five grains. This was continued for ten weeks. There has been no recurrence. The surgical condition progressed smoothly and the patient left the hospital on the nineteenth day in a rapidly convalescing condition.

How, where and when was the woman infected? She states that she was never before sick excepting from several attacks of abdominal pain, evidently attacks of appendicitis. She was born near Temsevar, Roumania, where she lived until the month of February this year, when she entrained for Antwerp, from which port she sailed direct to St. John, New Brunswick, thence by rail direct to southern Saskatchewan, where she arrived about March 1st.

In a discussion of this case, Dr. M. M. Seymour, Deputy Minister of Public Health for Saskatchewan, states that one other case of malaria has been reported in the province this year. He is not aware that the anopheles mosquito has been seen in Saskatchewan, but states there is no geographical or climatic bar to their being here or being imported, as malaria exists in places from the equator to the Arctic Circle. The anopheles is found in the Temsevar district. Our patient, an intelligent woman, states that her sister and some of her neighbours were at times sick with malaria. She recognizes her own sickness as being similar to that from which they suffered, but as we have already stated, she never was sick except with the abdominal trouble.

The anopheles do not migrate. They seek protection against being carried to any distance with the wind, by clinging to trees and shrubs and taking refuge in the grass, but they have been transported long distances in hay and other commodities, and thus have caused outbreaks of malaria in unusual places. The anopheles does not appear at present to infest any part of Canada.

In discussing the period of incubation required for the development of the symptoms of malaria, Osler and McCrae, *Principles and Practice of Medicine*, page 248, state, "Experimentally the period of incubation varies from

thirty-six hours to fifteen days. Attacks have been reported within a very short time after the apparent exposure. On the other hand, the malarial infection may be, as is said "in the system' and the patient may have a paroxysm months after he has removed from a malarial region, though this can not be the case unless he has had the disease when living there." Writing of relapse in the same work, page 251, we read, "The infection may persist for years and an attack may follow an accident, an acute fever or a surgical operation," and again on page 254, "Some think there is a resting stage of the parasite, which remains in the spleen or the bone marrow. Schaudinn believed that there is a special parthenogenetic form which may remain latent for an indefinite period; months or even years may elapse between the primary infection and a relapse occurring under conditions that preclude the possibility of re-infection."

Following this it is interesting to quote from Marchiafava and Bignami, page 132, Vol. 19, *Twentieth Century Practice*, where they discuss very long periods of incubation. They cite two cases where the attacks developed, one 48 days and the other 184 days after the known date of exposure. In explanation of these long periods, there are two hypotheses. The first, that the parasites collect in the spleen or bone marrow, remaining inert until made active by some exciting cause; the second, that the parasites multiply indeed, but in such small numbers as to occasion a non-febrile infection, which gets well spontaneously, so that the first and late febrile disturbance is really a relapse.

In corroboration of the latter view, is the now verified observation of the succession of parasitic cycles without febrile manifestation, and the existence of anaemia and splenic enlargement in persons living in malarial regions, who deny they ever had attacks of fever.

Climatic conditions in the Temsevar district are such that mosquitoes are never active during winter. The last winter there was unusually severe, so we may know our patient was not inoculated during the winter in her native land. Granting that the mosquitoes were active in Roumania until November 15th, and it is probable they hibernated earlier, our patient sickened 244 days after the latest date at which she could have been inoculated in her native land. This would be the longest period of incubation of which we can find record. We accept the patient's statement that she never was sick before. This precludes a relapse from a former febrile attack. Was this then one of those cases where eight months or more had elapsed since the infection with occurrence of a non-febrile attack, a relapse being induced by the surgical procedure? Against this we can state that the woman during the intervention period was in good health, with the exception of occasional abdominal attacks of pain due to the appendicitis. She was working hard and, when we first saw her, presented no appearance of anaemia. With reference to the enlarged spleen detected later, we feel sure it was not there at the time of our first examination, for when called to examine a patient, where the symptoms point to appendicitis, we have long practiced a method which seeks to establish a diagnosis of other less common diseases, and in so doing, a careful examination of the abdomen cannot be avoided. It was only after the occurrence of the third febrile attack that the spleen was easily palpable, indeed it was impossible to miss it. We can think of but one other possible explanation of this case. It is known the anopheles has been transported long distances and has caused malaria to occur at points far from its habitat. Did this woman and her husband travelling alone to Canada carry in their baggage some hibernating anopheles? Arriving here they took residence in a small thin-walled shack. Our spring and early summer were cold and backward. One native pest, the culex, was late in showing activity. Did a transported impregnated anopheles come out of hibernation in the prairie shack about mid-June and inoculate her countrywoman? And did the mosquito then deposit her eggs in the near-by slough, where about thirty days later her progeny could take wing and reproduce themselves into a numerous colony? The young females would but need some blood from a human host carrying the plasmodium to present us with the beginning of a malarial epidemic. The question is for our public health officers to consider, particularly those at the country's portals.

A CASE OF PAPILLOMA OF THE SIGMOID

Reported by

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This condition is of sufficiently rare occurrence to warrant the following report:—

Mr. M. V., age sixty-nine, Austrian Hebrew, was first admitted March 6th, 1919. For a year he had experienced pain in the rectum of a dull aching character, with occasional blood in the stools, frequency of urination and occasional urinary incontinence. He had lost fifteen pounds weight. He showed considerable pallor. Urinary vesical calculus was diagnosed. The stone was removed, and patient was discharged in the eighth week.

He presented himself again on April 10th, 1923, with bleeding from the rectum which was ascribed to piles, and constipation. Briefly the findings were emphysema, arterio-sclerosis with hypertension, a secondary anaemia, a suprapubic hernia, and a left inguinal hernia. Report of the x-ray examination after a barium meal stated:—"The sigmoid appears to be dilated and there is an irregularity in its contour at its junction with the descending colon. No irregularities are noticed in the rest of the large bowel. The findings are suggestive of adhesions about the sigmoid." While in hospital he developed an ischio-rectal abscess, necessitating operative intervention. When this healed, he requested discharge.

The present admission, on April 8th, 1924, following consultation with Sir Henry Gray, was on account of severe bleeding from the bowel, and pain in the left lower quadrant of the abdomen with colicky exacerbations. The bleeding from the bowel up to two months prior to admission had been small in amount, at frequent intervals, but since then it had become more copious, the accumulation of fluid and clotted blood frequently forcing defaecation. There were "one, two or sometimes three of these haemorrhages in a fortnight." The pain in the abdomen was usually of a dull aching character, occasionally colicky; at other times only a sense of discomfort. It was usually more marked prior to an evacuation of blood. There was marked pallor and a further loss of weight of five to ten pounds. There was no history of venereal disease.

The physical condition was essentially the same as on the last admission, except that there was tenderness along the left colon and a tender, oval, rather vaguely defined movable mass, like a flattened orange, was felt in the sigmoid region. Rectal palpation was negative. The proctoscope, passed eight inches, revealed nothing of pathological interest except high grade ballooning of the bowel. The vital signs were normal. Wassermann's test was negative.

The radiologist's report stated:—"A barium enema passed into the rectum and part of the sigmoid colon, but with a moderate amount of pressure. The remainder of the sigmoid could not be filled nor was any barium seen to pass this region. The findings are that of obstruction of the sigmoid colon. A barium meal shows no obstruction as far as the splenic flexure." On the second and third day in hospital three to four ounces of bright red and clotted darker blood were passed from the anus.

Diagnosis.—When considered together, the age of the patient, absence of history of other definite lesions, negative results of special tests, absence of secondary inflammations and the persistently localized nature of the trouble ruled out inflammatory disease such as tuberculosis, syphilis, actinomycosis, and diverticulitis. In view of the large size of the mass and the fact that there was no evidence of secondary lesions which usually accompany malignant disease of long standing, practically compelled consideration of papilloma or other benign condition. The absence of symptoms pointing to intussusception, coupled with free haemorrhage, made one think of a vascular tumour with a broad base which could not readily be inverted. This ruled out ordinary polypoid growths such as adenoma, fibro-myoma, solitary papilloma, etc. Accordingly the diagnosis of a large papillomatous mass was made. Owing to the acute exacerbation of the last few weeks previous to admission it was thought possible that malignancy had supervened.

Operative Procedure by Sir Henry Gray, Surgeon-in-Chief.—A right paracentral incision six to eight inches in length was made through skin and anterior rectus sheath, the lower part excising the old mid-line incision. The omental

hernia, which had protruded through the top of the old scar to the right, was removed. The rectus abdominis was retracted outwards and the posterior sheath and peritoneum opened. A mass near the middle of the sigmoid flexure (about the size of a small fist) was at once discovered. It was non-adherent to the surrounding structures. No glands were palpable in the somewhat short meso-sigmoid which was tucked down to the iliac fossa by fairly well marked meso-sigmoid adhesions. Soft glands, the largest about the size of a small haricot bean, were felt in the meso-sigmoid after division of adhesions. Accordingly, a wedge of meso-sigmoid including these glands were removed along with the growth and three to four inches of the bowel above and below. The bowel above the growth was slightly hypertrophied, but was only about one-third the size of that below the tumour. By cutting the upper end obliquely and suitably adjusting sutures, an end to end anastomosis was easily made. The inner row of sutures were of chromic catgut and the outer, interrupted, of fine linen. The appendix was drawn through a stab hole, cut across, and a large rubber catheter introduced through it to drain the colon and act as a safety valve. The main wound was sutured in layers without drainage. The patient received a blood transfusion by the citrate method during the operation. His condition at the end was satisfactory.

Pathological Report.—On opening the specimen longitudinally it presented on its mucosal surface a growth, 7 cms. long by 11 cms. wide. The growth was made up of irregular, large and small, long, soft and nodular polypoid glandular masses. The polypoid masses varied much in length and size. There was no infiltration of the bowel wall about the broad base of the growth, which did not involve the muscular coat. The circumference of the bowel above was 5 cms., while below the growth it was 10 cms.

Microscopical examination showed typical papillomatous structure, the core of the papillae being of vascularized fibrous connective tissue supporting a growth of mature glands composed of columnar epithelium. These cells were growing in a regular manner on a basement membrane. There was no evidence of infiltration of the glandular tissue into the depths of the gut-wall. The tissues of the bowel wall were diffusely infiltrated by inflammatory cells. The glands of the meso-sigmoid showed only catarrhal inflammation.

The extraordinary dilatation and hypertrophy of the bowel below the growth cannot easily be explained. As shown by the proctoscopic examination the ballooning extended to the rectum. This ballooning is referred to frequently in cases of stricture. One explanation put forward is that it is due to interference with nerve supply. While that might hold in cases of carcinomatous stricture, such an explanation must be ruled out in this case as the growth did not affect the muscular coats where the plexuses run. Professor Oertel stated that the whole lesion can best be explained on the basis of a developmental anomaly.

The patient made an uneventful recovery, and from recent reports is perfectly well, so far as his bowel functions are concerned.

PICRIC ACID POISONING

WALTER BAPTY, M.D.

Victoria, B. C.

Miss L. C., aged twenty-eight, a nurse in training, had scarlet fever in December, 1923, followed by pneumonia and empyema with operation; severe haemorrhage (post-operative) ensued, for which blood transfusion was given. She had been home convalescing all summer, although the sinus from the chest had closed only three weeks prior to this illness. General health was becoming excellent, weight having reached 158 lbs. Her thyroid gland has been slightly enlarged for years.

On August 26th, 1924, a slight rash and irritation developed along the course of the fifth right intercostal nerve. When seen, August 27th, small vesicles of herpes zoster were forming. An application of 10% picric acid was ordered Aug. 29th. This she painted over the vesicles sparingly night and morning for three days. The rash commenced to subside and apparently dried up in two days' time.

On the evening of September 5th, the mother phoned saying the rash had commenced to spread and was appearing on the neck and

right arm. Over the telephone the mother was advised to paint over the tops of the rash with the same picric acid solution. This was done once.

The patient was seen September 6th. The area around the distribution of the herpes zoster was red and elevated. The original lesion was weeping copiously. Red, angry-looking, raised areas were also present over both forearms and both cheeks and the neck. Frequent doses of calcium lactate were administered and a solution of hyposulphite of soda applied freely by baths and compresses. The following day the face was swollen so that the eyes could scarcely be opened, the temperature was 102°, the tongue was furred and she would take no food.

September 8th, her condition was worse. The face was more swollen. Possibly, the first areas of rash to appear were paler in their centres. The whole of the body by this time was covered with small, very red, slightly raised spots. The site of the herpes still kept up a constant oozing. Urine was scant and high coloured. Nausea was a feature, but the patient could still retain small quantities of ice cream and iced ginger-ale. She vomited bile-stained fluid once during the day.

September 9th, the rash had become confluent over many areas, particularly on the trunk, neck, scalp, face and buttocks. The spots were elevated and the centres were haemorrhagic. The tongue remained heavily coated. The face was still badly swollen, the upper eyelids being very oedematous. A heavy odor was present from the herpetic area, which continued to discharge freely. Morning temperature, 102.3° F. By afternoon the patient seemed a little brighter, the swelling about the mouth and nose was slightly less but temperature was 103.3°. From a dark coloured albuminous sample of urine passed on the 9th, Dr. Walker, Pathologist to the Jubilee Hospital, reported a trace of picric acid found.

September 10th. Rash showed signs of fading. Where the spots were discrete each one was seen to consist of a deep red centre, surrounded by a narrow rim of pale normal skin which in turn was surrounded by a zone of hyperaemia, giving the skin a peculiar mottled appearance. The face and scalp were desquamating freely. The herpetic area was discharging less and the edges were healing. The raw area appeared like an ordinary healing burn. Urine was freer in amount but still contained albumen.

September 11th. P. 100, T. 98°. The swelling had left the face and the rash was fading. The eyes could be opened easily and were seen to be deeply injected. The patient was quite bright and had desire for food. Urine was now being secreted freely.

September 12th. Branny desquamation was now general over all the areas which had been covered with the rash. Urine was abundant but still contained a trace of albumen. Rash was coppery and on pressure a momentary icteric tint could be seen.

September 20th. Patient continued to improve and was able to travel into town. The skin had become dry and rough, and the irritation, particularly at night, was still troublesome. In spite of large doses of calcium lactate (½ teaspoonful doses) the patient showed signs of urticaria not evident before this sickness.

The mother reported that in 1914 "Iodine Petrogen" was applied externally over the enlarged thyroid night and morning for about two weeks, when a rash appeared with considerable swelling of the face and neck; so much so that the neck was almost level with the chin. No rash appeared below the breast. This quickly subsided and disappeared in a week. I also found that a slight dermatitis had resulted in 1922 from applying a weak aqueous solution of picric acid for a small steam burn on her forearm.

The use of 10% alcoholic solution of picric acid was recommended in an article which appeared in the abstract department of the *British Medical Journal*, but I have no memory as to where the original article appeared. No doubt an idiosyncrasy existed in this particular case; in the *British Medical Journal* of September 20th, 1924, Dr. Henry C. Semon in a memorandum reports a case of picric acid dermatitis resulting from painting the skin. Absorption from a raw surface such as that resulting from a burn is readily understood. Apparently the superficial lesion of herpes zoster is also a surface which will absorb certain chemicals. While not absolutely condemning the use of such a strong solution, one would be well

advised to be content with one sparing application applied by the medical attendant himself, and even then it is possible that in an exceptional case a severe reaction may be seen.

AN UNUSUAL CASE OF RINGWORM IN AN ADULT (DUE TO TRICHOPHYTON GYPSEUM)*

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CASES in ringworm of the glabrous skin in adults, of the type known as "epidermophyton cruris" or "Dhobie itch" are relatively common. On the other hand, the occurrence of a widespread disseminated dermatosis due to a trichophyton gypseum and simulating a patchy squamous eczema is of sufficient rarity to justify the report of a case.

Mrs. B., age 37, came to the dermatological clinic of Dr. G. G. Campbell at the Montreal General Hospital on Sept. 29th, 1923, complaining of an itchy skin eruption which she stated she had had for the past seven years. The condition had not altered very much during that time. Apart from the original sites of the disease to be described later, she said that at various times different areas of the body had been involved by a similar process but that such areas had cleared up spontaneously or under mild treatment.

Physical examination September 29th, 1923, showed the following:—"The patient is a well-developed, somewhat obese, apparently healthy woman. She presents an eruption on the extensor surfaces of both forearms, which extends from the wrist to the elbow joint, on the entire surface of both buttocks and the anterior surface of the right knee joint. On the buttocks the eruption is limited to the convex surface and it is noteworthy that neither the perianal fold nor the genitalia are affected. The lesions are essentially scaly and erythematous in appearance and consist of small discrete guttate maculae and larger patches of irregular size and shape. The small discrete lesions are round and they have a slightly depressed, slightly scaly floor, the result of a loss of some superficial layers of the epidermis. The border of these maculae is sharply demarcated and is slightly raised and erythematous. The larger patches have apparently resulted from a confluence of these smaller lesions, but the skin covering these areas has become thickened and presents a moderate degree of lichenization. Some superficial excoriations and eroded areas are to be seen (scratch marks)."

The condition was found on microscopical examination, to be due to a fungus, the mycelium of which showed abundantly in the scales. On culture a pure growth of fungus was obtained by using Sabourand's glucose agar made with French peptone (Chassaing) and on this media the mould grew readily and luxuriantly. A small downy white growth becomes visible by the fifth day and this becomes with further development rapidly powdery. The colony attains a diameter of 5 cms. by the thirtieth day. The growth shows a central shallow depression surrounded by a raised border-like area and this again is surrounded by a delicate fringe of radiating rays. The surface of the colony is covered by a thick, snow-white, powdery growth. Certain cultures have taken on a somewhat yellowish tinge. Older cultures tend to become brownish in colour. Under the microscope surface growth shows three types of spores, (1) Small, oval spores in grape-like clusters attached to the mycelial stalk by a short pedicle; (2) Large, round chlamydospores, intercalary and terminal; (3) Here and there are occasional fuseaux. No spirales have been formed and pleomorphic changes have not been observed.

The patient was instructed to apply twice daily Whitfield's ointment containing in one hundred parts of vaseline two per cent of salicylic acid and five per cent of benzoic acid. She was told further to have her underclothes and her bed linen sterilized by boiling. Two weeks later she returned to the clinic when the following note was made: "Practically no lesions left." There was a slight recurrence a month later and this readily yielded to the same treatment. Since that time there had been

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*From the Department of Dermatology and Pathology of the Montreal General Hospital. The laboratory study was made possible by the assistance of a grant from the Cooper Memorial Fund of McGill University.

no further lesions and the patient is apparently cured.

The fungus is one of a small group of ringworm fungi described by Sabouraud (Les Teignes) under the name of trichophyton microides gypseum, and it most closely approximates the trichophyton gypseum granulosum.

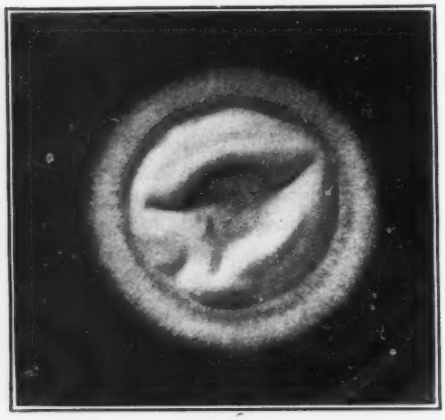

FIG. 1.

Forty day growth on Sabouraud's glucose agar made with French peptone (Chassaing). Note the granular character of the surface and the fine marginal rays.

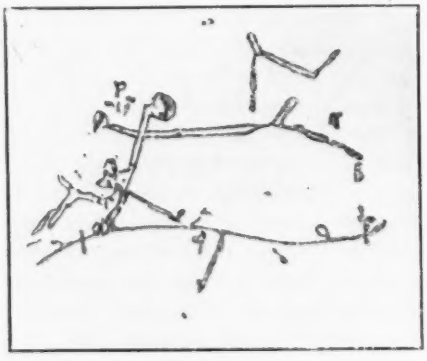

FIG. 2.

High power micro-photograph of surface growth showing one large chlamydospore and several small spores attached to the mycelium.

Summary

A case is reported of a widespread, scaly, eczematoid skin eruption of seven years' duration caused by a superficial infection due to a ringworm fungus. The source of this infection we have been unable to find. Culturally it proved to be due to a fungus most closely allied to the trichophyton gypseum granulosum and it is probably that organism notwithstanding certain minor variations.

It is interesting to note that those areas of the body so commonly associated with epidermophyton infections were not affected, in spite of the fact that the lesions persisted over a long period. Possibly this was more or less accidental. The value of considering the possibility of a fungus infection in widespread eczematoid scaly dermatoses of this nature is emphasized by the findings in this case.

I am greatly indebted to Dr. G. Gordon Campbell, Chief of the Dept. of Dermatology of the Montreal General Hospital and Dr. Lawrence J. Rhea, Director of the Pathology Laboratory for the opportunity of investigating this case and for much practical help and advice in connection with the clinical and laboratory findings.

TUBERCULOSIS OF THE PERITONEAL AND PLEURAL SACS TREATED BY ALPINE LAMP

C. A. PETERS, M.D.

Montreal

G. A., a Syrian, aged nineteen, was admitted to the medical wards of the Montreal General Hospital on April 8th, 1924, with general swelling of the abdomen. He had noticed this condition only within the last three months, and until then had been feeling quite well. He had suffered from some pain in the abdomen after food, was gradually losing his appetite and had noted a loss of nine pounds in four months. There were no other symptoms of note.

On admission he was somewhat emaciated, with an evening temperature of 104° and pulse of 104. There were signs of a moderate amount of fluid at the bases of the lungs, but no adventitious sounds. The abdomen showed symmetrical distension with a large amount of movable dulness in the flanks; no masses could be felt. His weight was 126 pounds. The laboratory findings in regard to the blood and urine showed nothing of note.

For the next week he ran an intermittent temperature rising every evening to between 102° and 104°, with a rapid pulse, and at the end of this period his weight was 110 pounds.

During this time he was treated with colonic irrigations, rest and massage. On May 2nd he was given his first Alpine lamp treatment which was repeated in three days. Within eight days his temperature had returned to normal, and it remained so with one or two days' exception when it reached 99°. He gradually gained weight, reaching 133¼ pounds at time of discharge. There was progressive disappearance of the fluid, until there were signs of only a small quantity both in the pleuræ and peritoneum. With the disappearance of the peritoneal fluid it was possible to palpate indefinite masses throughout the abdomen. In general he had improved very distinctly; he felt strong and fit for work and had a good appetite. In all he received six Alpine lamp treatments.

The case has been thought worthy of recording on account of the rapid and complete recovery following the lamp treatment.

A NEW JOURNAL

With the appearance of the first number of the Journal of Clinical Investigation one is naturally justified in inquiring into the purpose of this new publication. In 1908, through the stimulus of Dr. Samuel J. Meltzer, the American Society for Clinical Investigation was founded. Its purpose was to bring together a group of the junior men, especially those giving time to research, and to form them into a society whose main purpose was the cultivation of clinical research. This society has recently felt the genuine need of a publication to coordinate and make available for the practitioner the results of scientific work in clinical medicine. As stated by its Editorial board and its Editor-in-chief, Prof. G. Canby Robinson of the Vanderbilt University School of Medicine, the Journal has three main objectives:

1. To place on record the results of research in Clinical medicine.

2. To present to the practitioner of medicine papers dealing with problems of human disease.

3. To acquaint the workers in the medical sciences with the various applications of their science to clinical problems.

A survey of the first number of this publication shows that the above ideas are being realized. The Journal is to be published bimonthly by an Editorial board elected from an Editorial committee appointed by the American Society for Clinical Investigation.

Childhood, in this twentieth century, like the childhood of the race, should have its happy and sheltered pure-bodied and pure-minded Garden of Eden. Many are the trees of knowledge of good and evil that men and women may eat of, indeed must eat of, that should be guarded from the approach of little children by the bright-faced angel with the flaming sword. Every day well-brought-up children are told, not lazily or carelessly but kindly, that they may know and see and do much when they grow up, that they may not know or see or do now. The foods, the smokes, the teas, and coffees, the hours and the pursuits of adults have no place in the nursery Eden. Problem plays or books may properly interest men and women that boys and girls should see nothing of. Judge and jury must know the last shocking detail and the most elemental motive of brutal murder, that justice be done, and the proper officials may have to see that the gallows work is not bungled, but little children have no place in court or in the execution court yard. A little later they will themselves be judges and juries, city missionaries, readers and writers, even, of problem books, but just now they belong in Eden, with the fruit pretty much still forbidden. The knowledge of good and evil, of the gross ills and gross good things of the world should come not suddenly and by chance, but gradually, as they are able to understand them. And from the gross disease infections of the world children should have an Eden-time of protection. Shades of the prison house will come soon enough upon the growing boy.—D. A. Stewart, Ninette.

Retrospect

RECENT WORK ON THE CAPILLARIES*

H. E. MacDermot, M.D.

Montreal

THERE has been within the last ten years a considerable change in our views regarding the capillary blood vessels. Not only have more facts been gathered, but we have also altered conceptions which were based on the previously less complete knowledge. Our advances have recently been well summarized by Prof. Krogh, of Copenhagen University, who comments on the fact that while it has been realized that the heart, arteries and veins are subservient to the function of exchange carried out in the capillaries, "it is a little strange to find that far from being a favourite subject for anatomical and physiological research, the capillaries have been neglected in an extraordinary degree. Though about two hundred years have passed since the capillaries were discovered you can find them dealt with in a few lines in quite modern text-books on physiology, and the references to their structure, given in books of histology, are likewise of the most summary nature. In the last few years, however, the capillaries have been, so to speak, 're-discovered.'"

Until a few years ago it was thought that the capillaries were passive endothelial tubes, with the blood flowing through them in quantities and at a rate controlled by the contraction or dilatation of the arterioles. It was true that Stricker as far back as 1865 had noted that the capillaries were capable of expanding or contracting independently and spontaneously; and, later on, Rouget had described certain cells lying on the outside of the endothelial tubes and embracing them with fine processes. He reported, too, that he had seen these cells contract. These observations, however, did not have any weight in general physiological teaching, and it was only in 1917 that the accumulation of evidence began to compel physiologists generally to consider the possibility that capillaries could dilate or contract quite independently of the rest of the vascular system.

Cotton, Slade, and Lewis, for example, published a paper on the reactions of skin capillaries in the phenomenon of dermatographism. They showed that stroking the skin produced certain vascular effects (flushing or blanching of the skin) which could only be explained by the fact that the capillary walls themselves were either expanding or contracting. If the flushing were produced by a greater volume of blood being sent to the tissues by the arteries, then it would be directly affected by cutting off the arterial blood supply. But it was found that the stroking still gave rise to the flushing and blanching even if the arteries were completely obliterated, and the conclusion made therefore was that the capillary walls were modifying the calibre of the vessels by themselves contracting and expanding. The blanching effect of adrenalin was also produced under the same conditions of obliterated arterial supply.

Further similar observations were made by Ebbecke in the same year. He carried out the same experiments on the surface capillaries of the liver and kidney. He also demonstrated the independent activity of the capillary walls by the following experiment. A frog was curarized and the web of one foot was pinned out and allowed to dry at rates which could be varied. As the drying proceeded the circulation became very slow, many capillaries being closed down. Then the arterioles and arteries were seen to dilate and the capillaries began opening up, which was quite in accordance with the accepted view that the condition of these latter depended altogether on the pressure and degree of dilatation in the arterioles. As time went on, however, it was seen that the arteries again contracted, but in spite of this the capillaries continued to dilate, and fresh ones would be seen opening up. It is difficult to explain these phenomena except by attributing to the capillaries a capacity for independent regulation.

The researches of Dale and Harris contributed yet further support to this new view. It

*Read before the Osler Reporting Society, April, 1924.

had been a problem in Professor Dale's mind to account for certain peculiarities in the effect of histamine, one of the intensely toxic protein derivatives whose action he had been investigating for some years. It was quite clear that histamine caused a great dilatation of the capillary bed, for it gave rise to intense flushing and a general fall in blood pressure. Equally certain was it, however, that histamine at the same time caused a constriction of the arterioles, and the only way in which these facts could be reconciled was by assuming that in the capillaries we have a contractile power independent of what occurs in the arterioles. Just where the differentiation in the vessel wall takes place is another matter; it can only be concluded that "at some point in the vascular system the response to histamine changes from the constriction seen in the finest separable arteries to dilatation."

Krogh was led to similar conclusions by work on problems which also were only indirectly connected with the matter of capillary control. His original problem was to determine how the supply of oxygen to the muscle fibres was regulated. The capillary brought the oxygen to the muscle by means of the blood, but the distribution of the gas must depend on the number of capillaries in relation with the tissue, and further, the "call for oxygen" as it has been termed by Barcroft, must be extremely variable, depending as it obviously did, on the activity of the tissues. If, however, the number and distribution of the capillaries were constant then it was quite clear that the supply of oxygen would at times be disproportionate to the requirement of the tissues. Therefore, it was necessary to know something of the anatomy of the capillaries, and by using special intravital injections of India ink he was able to count and measure the capillaries in the muscles of small mammals, both while at rest and during contraction. His findings are impressive. In a guinea-pig, e.g., he found that the number of capillaries open in a given area during rest, compared with the number seen in the same area during activity, was 1:30. Considered in terms of blood volume, the conditions noted were even more striking. If the blood volume was taken as a percentage of the muscle volume, it was found to vary from 0.02% in the resting muscle, to 5.5% in the active muscle, and 15% in the muscle with all the capillaries fully dilated. In other words, "the volume held by the capillaries open for transmission of the blood in a normal, resting muscle, may be as little as one 750th part of the total capacity of the whole capillary network in the muscle, if all were fully dilated." (Dale).

The arrangement of the capillaries in the muscle was shown to be of almost uniform regularity, so providing for the maximum of interchange; and it was also noted that at whatever stage of activity the muscle was examined the arrangement of the capillaries open was always found to be uniform in manner. That is to say, there is an orderly sequence in the opening up or shutting down of the capillary bed. Such a distribution of the capillaries must obviously have a bearing on the nutrition of the tissues. In the human skin, for example, while "the vascular surfaces available for exchange of substances have not been made out, the total surface of the capillaries proper is extremely small, being something between one and two square cm. per cm. of the skin surface. Even when the whole surface of the veins (which, except in the papillae replace capillaries) is assumed to be available for exchange, the total surface will fall far short of the capillary surface available in the muscles, and the average distance from the tissue elements to the vessels will be much larger. This is no doubt the anatomical expression of the fact that the metabolic level of the skin is low, and probably not very variable."

It is interesting to note how the proportion of capillaries to the muscle fibres varies with the metabolic activity of the animal. In a horse, for example, the number of capillaries per square mm., in a transverse section of the muscle, is not less than 1,350. Some idea of the magnitude of this number may be gained from a comparison with the cross sectional area of an ordinary pin. This is about a square mm., and into such a space in the muscle there are packed about 700 parallel tubes carrying blood, in addition to about 200 muscle fibres.

"In other animals the number of capillaries per mm. may be even larger. It is well known that mammals have a higher metabolism than cold-blooded vertebrates, and small mammals a higher metabolism than large ones, and there appears to be some relation between the meta-

bolic activity and the number of capillaries per mm. of muscle..... I have no doubt that in the smallest mammals the number of capillaries per sq. mm. is well above 4,000. In cold-blooded animals, such as the cod and the frog, much smaller figures are found, averaging only about 400."

A great deal of actual observation of human capillaries has been made by Lombard's method. In this way it is possible to see the capillaries in the papillae of the skin, especially at the base of the nail and the back of the hand, and a study of the changes that go on in them gives much information as to their regulation. The general shape and size of these capillaries remains unaltered for a long time, but many minor spontaneous alterations occur in the diameter of individual capillaries and the rate of flow through them. On the back of the hand, however, if a given area is watched it is found that the capillaries are not all open at a given moment, but are opening and closing continuously. These changes have also been noted in the rabbit's ear, and Dale has seen the blood flow shift from one glomerulus to the other in the frog's kidney.

Now Krogh believes that these shiftings in the open capillaries represent the very essence of regulation of capillary circulation, for, he says, "a very small number of open capillaries (compared with the total number existing) is sufficient to supply the wants of a resting tissue, but if the open capillaries were always the same the distribution of the substances supplied by them would be very unequal. The tissue elements nearest to the open capillaries would get more than they required, and the more distant would be starved. When the position of the open capillaries is continuously changing, a cell, starving at one moment, will get all it wants when the capillary nearest to it is opened up. In this way an adequate, though intermittent, supply can be secured at every single point, while at the same time the blood is utilized with the utmost economy, the necessary minimum only being present at any one time in any tissue. A regulation of this kind may possibly be brought about by metabolic products accumulating at points where the distance through which they have to diffuse in order to reach an open capillary is too great, and by their action causing the opening of a nearer vessel. It may be conceived as simply due to oxygen lack—in some tissues at least—and it may be due to the pituitary hormone which gradually disappears from a capillary when it is closed to the passage of blood. It is at present impossible to make a choice between these and other possibilities."

Along with these investigations by Krogh, work was also being done by his assistants on the histology of the capillary wall, and their researches, particularly those of Vimtrup, fully confirm and extend the description of contractile cells given by Rouget and Mayer. The details have been summed up by Krogh as follows:

"Like the walls of the smallest arteries and veins, the capillary wall consists of two distinct elements—the endothelial tube and the outside muscular coat. The important difference between capillaries and larger vessels lies in the arrangement of the muscles, which in the arteries and veins forms a more or less continuous layer, greatly increasing the thickness of the wall and offering a considerable resistance against the exchange of substances between the blood and the surrounding lymph spaces or tissue cells, while in the capillaries, the muscular coat is arranged more or less in the form of a wide-meshed network, leaving the larger part of the endothelial surface uncovered and adapted for the passage of substances with a minimum of resistance."

Vimtrup not only studied the capillaries in stained tissues, but was also able to observe the vessels in the living state, both in the tail of the newt and the web of the frog. In the newt spontaneous contractions and dilatations of single capillaries or parts are of frequent occurence, and these are always seen to begin just where the nucleus of one of the Rouget cells is located, but unless stimulation is applied the movement of the cells are too slow to be followed by the eye (Carrier has also noted that even small areas of a capillary may alter shape independently). With stimulation of the nerves in the frog's web, however, the changes could be observed. First of all there is in the cell an increase of refraction of light and then the contraction proper begins. The nucleus is seen to sink a little into the capillary and small indentations appear on the wall opposite; these correspond to the position of the

processes of the Rouget cell. "After two or three minutes' stimulation a maximum, though usually incomplete contraction is generally obtained, but about this time a very curious change takes place in the tissues, which lose their normal transparence and become so opaque that no structural details can be observed. When the stimulation has ceased the tissues regain their normal transparence and the contracted Rouget cells relax in the course of a few minutes."

There is a sharp line of demarcation between the capillary and the arteriole, the distinctive feature in the capillary being the large extent of endothelial surface in proportion to the area covered by the contractile elements. But between the capillary and the venule the difference is much less pronounced; indeed, physiologically, the sub-papillary veins in the human skin are really giant capillaries. Vimtrup has shown that they have a coating of Rouget cells, and their reactions to stimuli are very similar to those occurring in the capillary loops.

But while the existence of these Rouget cells in the capillaries of practically all mammalian tissues seems to be beyond question, Krogh points out that we still have much to learn about their shape, distribution, and number. Certain differences have been noted in these cells in the amphibia for example; in the tail of the newt they are of a primitive amoeboid character, and vary greatly in length. In the frog's tongue they are more robust, are fibrillated and are more distinctly muscular. But in such places as in the liver capillaries it is not at all clear how they are arranged. This organ has the power of absorbing microscopical particles from the blood at a very rapid rate, and the capillaries are more permeable than in other organs, but it is not known how these functions are correlated with the contractile structures.

In brief, then, we have added to our knowledge of the anatomy and physiology of the capillaries, and instead of considering them as passive vessels we now know that they are capable of dilating and contracting independently of what may be the case in the larger vessels. Their anatomical details require further investigation, and the mechanism of their adjustment is not clear; but Krogh's work has provided valuable data as to their number and arrangement, and the histological details of the contractile elements in their walls have been made out.

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The Effect of Intravenous Injections of Calcium Chlorid on the Kidney.—During the last two years, in the Mayo Clinic, patients with obstructive jaundice requiring operation have been given intravenous injections of calcium chlorid preoperatively in order to reduce their coagulation time, and to assist in the prevention of bleeding. Five cubic centimeters of a 10 per cent aqueous solution of calcium chlorid has been given daily for three days, and the results—the hastening of blood coagulation, as evidenced by a lowering of blood coagulation time, and the absence of postoperative haemorrhage in jaundiced patients—have been striking. John P. Bowler and Waltman Walters, Rochester, report now on their experimental work done on dogs on whom an artificial obstructive jaundice was produced by ligating the common bile duct under anesthesia and with aseptic technic. The effect of intravenous injections of calcium chlorid in various amounts on the kidney was studied, the kidneys being removed at the necropsy. With the exception of the usual changes in the kidneys accompanying obstructive jaundice, no other structural pathologic changes were found. Nor was it possible to produce deposits of calcium in the kidneys by doses ranging from 8 mg. for each kilogram of body weight to the lethal dose of 280 mg. for each kilogram of body weight in normal dogs, and of 380 mg. for each kilogram of body weight in jaundiced dogs. It was not possible to demonstrate a deleterious effect on the kidneys of any of these dogs, either clinically or pathologically.—*Jour. Am. Med. Ass.*, Oct. 18, 1924.

Editorial

SUCCESS IN MEDICINE

IN many of the London schools of medicine it has been for long the custom to have their winter session opened with an address on some general topic in medicine by one whose studies and experience has entitled him to speak fittingly on the work and aims of the profession. A few of the addresses given this year have been unusually interesting and emphasize important facts and thoughts which may have interest for our readers in Canada. The *Lancet* refers to them in an editorial, under the heading of "Principles of Success in Medicine"; certainly a very utilitarian title, but it appends the statement that they may all be summed up in the message of the apostle to the Gentiles "to keep in mind whatever is just, whatever is pure, and whatever is of good report," and adds "This advice contains the germs of psychotherapy, doubtless prompted by the medical companion of his journeyings."

From our reading of these very excellent addresses we note that much higher thoughts and ideals than mere personal success in practice were placed before the several audiences, and the goal of the profession was shown by its works to be the good not only of the community but also of the race in general. This altruistic aim in medicine is clearly brought out in the address of Dr. Charles Porter to the students and teaching staff of Middlesex Hospital in which, instead of speaking upon the "Aspects of Preventive Medicine" changed his title to the "Preventive Aspects of Medicine," in order to impress his hearers with the view that prevention of disease should be regarded as all important and should be the aim of every one entering on the study of medicine. The *Lancet* facetiously remarks that his address might have been written to refute Mr. Belloc's gibe at the profession in the lines, "For now we know, both how to make them sick, and how to keep them so." Dr. Porter states that in stressing the importance of preventive medicine he is desirous of instilling into the minds of those just beginning their studies that medicine is not merely curative in its aim, but has a definite preventive aspect. Once they get into the wards and see disease on every hand they may regard sickness as inevitably the lot of man and forget or give little thought to the old proverb that "prevention is better than cure." In proof of this, Dr. Porter placed before his audience the wonderful results accomplished by the profession in the prevention of disease during the past fifty years. He stated that on an average in the decade between 1871 and 1880 the annual number of deaths in England was nearly 518,000; a death rate of 21.4 per thousand. In 1923 the number of deaths had fallen by 100,000, and the death rate per thousand, considering the great increase in population had fallen to 11.6 per thousand, slightly over half of the previous rate. Something, he said, must have happened to disease, something that may for convenience be called prevention must have been exerting a definite influence on it. In infectious disease especially, the diminution of the mortality has been extraordinary. Scarlet fever, which in this decade between 1871 and 1880 added on an average each year 17,000 to the death rate, killing seven out of every 10,000, in 1923 it caused less than 1,000 deaths, or about 1 in 50,000. Smallpox contributed seven to the total number of deaths in 1923, as compared with an average of nearly 6,000 in each year of the decade mentioned. Typhus fever which added regularly about 1,500 every year scored only one in 1923, and enteric fever which is also

in the group of disappearing diseases, against an average of nearly 8,000, in 1923 was the cause of death in only 450 cases. The saving of life has been very marked also in early infancy and the mortality of this period has been lowered more than fifty per cent. Between 1871 and 1880 out of every thousand infants born, 150 died within twelve months, whereas in 1923 their chance of life had been greatly increased, and the death rate had dropped to 69 per 1,000 births. More notable than the effect produced on the diseases I have mentioned, and more wonderful than the increased expectation of life—nearly twenty years given to this generation—this great fall in the rate of infant mortality must be regarded as the result of purely preventive measures directed by the medical profession. In this great task of preventing disease and death set before the profession, Dr. Porter emphasized the importance of the education of the public. The title of doctor, he said, implied not only the power to treat and cure disease but the right, the ability and the duty to *teach* the important truths of personal, household and civic hygiene to all with whom they may come in contact.

More and more also, we meet with evidence of the demand from the people that they should be taught; they desire to know how to safeguard their life and their health, and while they may accept the fact that sickness and suffering for the present is in some cases unavoidable, they are trusting the profession to show them how to live a more hygienic and therefore a more healthy and happy life.

Mr. H. J. Waring in addressing the students of Westminster Hospital took as his theme the "Medical Man of the Future." He apologized for presenting some thoughts which must be more or less of a speculative character, but for his speculations he thought he had some foundation in the recognizable tendencies of medical thought and action at the present day.

Medicine as an art is one of the oldest, but as a science it is still very young but growing vigorously. Looking back on the past decade we can recognize the great strides made in chemistry and physics in their application to the living organism and as a result the growth of the sciences of biochemistry and biophysics. No one man can now keep abreast of the rapid developments in every department of medicine, hence the development of the specialist. The human frame has been portioned into many subdivisions, and each one allotted to or appropriated by a specialist whose business is to be specially conversant with the ailments of his own territory while asserting ignorance of all that lies outside of his own field. In addition there are what may be termed specialists in investigation, pathologists, bacteriologists, biochemists, and electricians. Up to a certain point this specialization is desirable and inevitable, leading to more perfect work and making possible greater progress in treatment, for it is the specialist who can extend the frontiers of knowledge.

Specialism, however, has its dangers and unless the specialist can work in connection with other members of the profession, the concentration of his thoughts and activities on one particular branch may degenerate into an obsession, causing him to view every problem from his own particular angle. Furthermore, as every specialist believes that his department is all important, each one is now claiming the inclusion of his particular subject in the curriculum of the medical student. Life, however, is short and even with the lengthened curriculum the inclusion of all specialties is a physical impossibility. Dr. Waring then referred to the fact that the patient in the hospital—the poor patient as well as the paying patient—has greater privileges at the call of his attending physician than any patient outside a hospital, no matter how rich such outside patient may be. The lay public are gradually becoming aware of this, and more hospitals for paying patients will be required. The investigation and treatment of disease in the present day, and more so in the future demands modern buildings with special laboratories and a highly trained *personnel*. Furthermore, Dr. Waring be-

lieves that in all large centres the medical man practising alone will gradually make way for the group of medical men organized on the basis of the division of studies and working on the lines of specialization. Specialization, however, must not be so intense as to divide the group into water-tight compartments. The training each man has received in fundamentals and in general medicine and surgery should render him competent to deal with ordinary cases and to recognize those which necessitate the services of a specialist.

Dr. Waring towards the close of his address expressed the opinion that the medical man of the present day does not play the part which he should do in public affairs. The demands on his time and energies are considerable and his leisure scanty, but democratic government will never reach its fullest development unless it has the services of educated, trained men, who are in a position to give expert advice on all questions affecting the health of the community, and who are willing to bear their part as good citizens in all that affects the public weal. Under well regulated conditions the time will come when it will be possible to hand over to the profession the whole responsibility for the health of the people.

Sir David Ferrier addressing the students at King's College pleaded that notwithstanding all the increased diagnostic facilities with which science has now endowed the physician there should be no atrophy of the trained faculty of the skilled practitioner, no disuse of the unaided *tactus eruditus*. The most important factor in success was a thorough knowledge of one's work.

DYSMENORRHŒA

AT the recent meeting of the British Medical Association one of the subjects for discussion was dysmenorrhœa and, unusual to relate, the most interesting contributions to the discussion were made not by gynæcologists but by women practitioners. A paper by Dr. A. E. Sanderson Clow contained among other things the statement that, while some observers had found that dysmenorrhœa occurred in fifty per cent. of all women and that its commonest cause was underdevelopment of the female genital organs, it appeared strange that nature should penalize these organs in the female while a similar condition of the corresponding or of any other organs was unknown in the male. This, though not made a main feature of her address, might quite justifiably have been so.

The statistical side of Dr. Clow's paper dealt with over two thousand young women, of whom ten per cent. were students in a training college for teachers, and the remainder girls in a secondary school. Of all these only twenty-two per cent. complained of dysmenorrhœa; seventeen per cent. slight; two per cent. sub-acute and three per cent. disabling. This relatively low figure is remarkable not only in comparison with the figures as usually given of about fifty per cent., but also in comparison with the figures obtained in the first 734 girls interviewed, viz. 46.7%. The marked improvement, a drop from forty-six per cent. to twenty-two per cent. is attributed by Dr. Clow to a change in regimen at the time of menstruation. It is also noteworthy that the disabling dysmenorrhœa, placed at only three per cent., is exceptionally infrequent inasmuch as the usual statistics of dysmenorrhœa deal almost exclusively with such cases.

Starting from the assumption that menstruation is a function which, when normal, has no symptoms and that but for the flow, the normal woman should not know that menstruation was taking place, suffering of any kind associated with the period must be regarded as abnormal and should be classed as dysmenorrhœa. If

the menstrual flow is to be considered as so natural, it follows that baths and exercise are to be continued during its presence not only with impunity but actually with beneficial effect; moreover it was noted that permission to lie in bed and read during the period was associated with a marked increase in the number of patients complaining of disability.

Based upon these premises, a schedule of advice to the young women was drawn up which may be summarized as follows:

"Menstruation is a natural function and should be free from pain and unpleasant sensation. The ordinary rules of cleanliness and hygiene should be observed as at all other times. Bathing is essential. Daily exercise in the open air should be persisted in, even in the presence of slight headache, backache or fatigue. The avoidance of activity will prolong and increase aches and pains. If unable to carry on, a doctor should be consulted as ailments are more easily cured in youth than later."

	School		*Training College*	
	Years 1915-1920 734 Girls	Years 1920-1924 612 Girls	220 Students	
	First Interview	Last Interview	First Interview	Last Interview
	Per cent.	Per cent.	Per cent.	Per cent.
Dysmenorrhœa—				
Slight	40.0	10.2	8.6	3.6
Subacute	1.6 46.7	0.5 10.8	7.2 19.4	1.6 5.6
Disabling	5.1	0.1	3.6	0.4
Occasional	Not recorded	7.6	5.3	3.6
Rest during period	20.3	4.0	4.0	0.4
Baths during period	11.9	74.8	11.6	52.2
Games, etc., during period	36.7	84.1	69.5	82.2
Constipation during period	7.0	3.3	2.2	0.9

As a result of this advice the number of sufferers was decreased, approximately seventy-five per cent. The subjoined table is self explanatory. As to the types of dysmenorrhœa—slight, referring to pain not sufficient to interfere with work or games; subacute, sufficiently severe to be apparent to others though not incapacitating. disabling, those unable to keep about if even for only half an hour or so. Occasional dysmenorrhœa refers to pain perhaps once in six or nine months; these cases are potentially normal.

It is noteworthy that the better results were obtained with the older girls who had taken advantage of instruction in hygiene, and it is suggested that many cases of dysmenorrhœa looked upon as a disqualifying complaint in women workers might be cured by exercise. A particular point is made of the necessity for sanitary conveniences for women workers which will avoid a common abuse—irritation from too prolonged use of the same sanitary towel. Dr. Clow does not go so far as to maintain that baths and exercise will cure every case of dysmenorrhœa but insists that, in the absence of evident abnormality, this simple treatment should be given a good trial before other measures are undertaken.

A mild protest against Dr. Clow's rather drastic simplicity was made by Dr. Leonard Phillips, but he, too, stressed the necessity for establishing a correct mental attitude towards menstruation and drew attention to the strong psychic element in certain cases of dysmenorrhœa. Practically all those taking part in the discussion were agreed as to the value of exercise; a particularly interesting contribution was made by a woman practitioner who stated that, though 10,000 women of various ages were employed in the General Post Office in London, the average time lost by them from all causes, including minor accidents as well as illness—was now under two days per officer, per year. Statistics of the incidence of dysmenorrhœa among these women showed that it was extremely infrequent, and the disabling cases practically negligible.

In closing the discussion the Chairman, Dr. John S. Fairbairn was complimentary and sympathetic. As a conservative gynæcologist he could not but welcome ideas which put simple prevention in place of complicated cure.

H. M. LITTLE

PNEUMONIC PLAGUE

PNEUMONIC plague has appeared in the Mexican quarter of Los Angeles. Apparently the first case diagnosed as such occurred about October 19th, but at the time of writing information supplied by the newspapers would lead us to suppose that the epidemic is waning, no new cases having been reported between November 6th and 11th. The number of persons affected is not definitely stated but the number of deaths is just under thirty. Plague in its pneumonic form is probably the most serious disease that can break out, for its mortality is close upon 100 per cent.

As stated in a recent editorial in the *Journal of the American Medical Association* the first adequate description of pneumonic plague was in connection with an outbreak in 1878-79 in Southern Russia. More recent epidemics have occurred; in Manchuria (1910-11) with 60,000 deaths; in middle China (1917-18) with 15,000 deaths; and again in Manchuria (1920-21) with 9,000 deaths.

It is now common knowledge that bubonic plague is conveyed from plague-stricken rats to man through the bites of fleas. It has also been shown that other rodents than rats may have plague and amongst these is the ground squirrel of California. In pneumonic plague, however, diseased rats do not play such an important rôle in the etiology of the disease. It is true that the pneumonic plague arises as a secondary manifestation of bubonic plague. This was especially brought out in the study of the Manchurian epidemic where the bubonic form gradually changed into the septicæmic, and finally into the pneumonic. The sputa of persons suffering from pneumonic plague is loaded with *B. pestis* and the disease may rapidly spread directly from man to man. So much we do know but our knowledge of the reasons for such a rapid spread of the disease can be regarded only as very incomplete.

Provided with data as to its extremely high death rate, and knowing that thus far no treatment has been of real avail in the pneumonic form of plague, nothing remains for us to do but to concentrate upon an attempt to stop the spread of the disease. Isolation of the stricken is the first essential and protection for the attending physicians and nurses the second. The measures used in Harbin, China, in 1921 should be carried out, *i.e.*, a special costume should be worn, consisting of a mask, overalls, a hood, high boots, and rubber gloves. The hood is put on over the mask, like a bag made of ordinary white cloth with two holes for the eyes, and goggles are worn outside the hood. The garments, when the attendants are off duty, are removed and placed in the sunlight and open air and later disinfected with formaldehyde. An antiseptic gargle and an antiseptic solution for the hands should be used. A. M.

THE IMPORTANCE OF THE MINERAL ELEMENTS IN THE DIET

AT the last meeting of the British Medical Association Dr. John Boyd Orr of the Rowett Research Institute in Aberdeen gave an interesting address on "The Importance of the Mineral Elements in our Diet." That the nature of the diet has an influence in health, has been recognized since earliest times, and the literature of the past contains much sound and suggestive information showing that our predecessors were neither so unobservant nor so ill-informed as some modern writers would have us believe. In recent years, however, a more thorough and systematic study of the fundamental principles of nutrition has enabled us to see more clearly the relationship between dietary deficiencies and disease, and to realize more fully the importance of diet in the preserva-

tion of health. The results of this modern work show that a faulty diet may be not only the direct cause of some diseases but a potent predisposing cause of many others.

Until a few years ago interest in dietetics centred chiefly in the requirements of the body for growth and energy, and in the proper supply of them in food. It was assumed that any ordinary diet, which supplied sufficient energy-producing and protein material would afford complete nourishment for the body. Such an assumption might be justified if the diet consisted of food stuffs in their natural condition. Unfortunately, the highly refined food stuffs of modern civilization are ill balanced in regard to their essential constituents, and though perhaps yielding sufficient protein and the necessary number of calories, they are deficient in materials absolutely essential for proper nutrition. Very recently the evil effects of these highly refined food stuffs was attributed chiefly or entirely to a deficiency of vitamines. Recent work, however, has shown that many of the evil effects may be due also to a deficiency in the mineral content of the diet, for it is now recognized that the amounts and proportions of the inorganic elements in the diet are of fundamental importance in the maintenance of health.

The fact that the great bulk of the mineral elements is contained in the bony structures of the body is apt to give the impression that the so-called inorganic elements play a comparatively unimportant part in the metabolic processes as compared with the organic compounds. As a matter of fact these mineral elements are present as essential constituents of all the soft tissues of the body. Cell life is impossible without them. They control directly or indirectly all the metabolic processes. The interesting experiments of Jacques Loeb and others have shown that not only must these elements be present in the soft tissues of the body, but if the normal functioning of the organs is to be maintained they must be present in very definite proportions to form a physiologically balanced solution. Various mechanisms in the body are concerned in preserving this physiological balance in spite of the irregular supply presented in the food, but when deficiencies or excesses in the diet are greater than these regulating mechanisms can deal with, the phys ological balance is upset and the disordered functions of the cells make themselves manifest as actual disease. Of the fifteen chemical elements which enter into the composition of the body and are recognized as essential elements, ten are mineral elements and each one of these ten is known to perform functions which cannot adequately be performed by any one of the others. The amount of any mineral which must be present in the diet depends upon a number of factors, which influence either its absorption or its excretion, and in estimating the mineral requirements these factors must be taken into account. The diet, therefore, may contain a sufficient amount as determined by a chemical analysis of one or more of these elements, but owing to some difficulty of assimilation an insufficient amount may pass through the wall of the intestine into the metabolic field where it can be utilized. It is interesting also to note that in the case of most of the minerals both absorption from the intestine and excretion by the kidney are influenced by the amounts of other minerals present. For example, the potassium-sodium ratio in the diet is a factor in determining the percentage of ingested calcium and phosphorus which can be assimilated and retained by the growing animal. Phosphorus and calcium are mutually dependent upon each other for utilization. So also to some extent are calcium and iron. The nature of the organic part of the diet also affects the absorption of minerals in the intestine. In the case of some diets oil increases the assimilation and retention of calcium and phosphorus. The importance of these dietary factors is shown by the recent experiments of Blauberg. He found that in infants the percentage assimilation of the mineral elements in human milk, whole cows' milk, diluted cows' milk, and an artificial food, was respectively 81.82,

60.70, 53.72 and 32.55. The high percentage of assimilation of the mineral constituents of human milk by the infant is due to the fact that the ratios of minerals to each other, and the balance of all the constituents of the milk are exactly suited to the requirements of the infant. The deficiency noted in the artificial food is of great practical interest.

All the factors which affect the absorption and excretion of minerals must be taken into account in estimating the amount of any given mineral that must be present in the diet to meet the requirements of the body. The problem is not so much to ensure that any definite amount of any mineral should be present in the food as to ensure that the diet and the conditions of digestion will be of such a nature that absorption will take place in the amount and proportions required to maintain the proper physiological balance in the fluids of the body.

With reference to the various articles of an ordinary diet it is to be remembered that the food stuffs rich in carbohydrates, such as flour, rice, cornflour, sugar, are very poor in mineral matter. The cereals are rich in phosphorus but are poor in iron. They have also a marked excess of acid radicals. The refined cereal products, so much in use at present, are poor in mineral matter. Green vegetables are rich in calcium and iron and have an excess of alkali, but they are relatively deficient in sodium. The ratio of the minerals to each other in the majority of foodstuffs is very different from that found in milk. In a combination of cereals and green leaf the ratios approximate more closely to those of milk, but there is a shortage of sodium and chlorine. The craving of common salt in a vegetarian diet is a natural instinct which tends to adjust the mineral balance. The balance of the base and acid radicles affects both absorption and secretion.

It has been estimated that fifty per cent. of American dietaries contain less than 0.67% of calcium, which is well below the standard required. In England the average intake is likely to be even lower because the average consumption of milk is twice as high in America as in Great Britain. The mineral content of the diet is of more importance during the period of growth than in adult life, for at this age the requirements are relatively greater and the evil effects of deficiencies are more serious. Unfortunately at this period it is customary to introduce into the dietary of the child refined cereal products of which the mineral content is low and the percentage utilization of what is present is also low. When these refined cereal products form a large part of the infant's diet there is a danger of definite deficiency of certain minerals unless the diet be supplemented with a generous supply of milk, green vegetables and fruit. The evil of mineral deficiency becomes very definite during the period of growth. The deposition of lime salts in the bone appears to be dependent upon the concentration of calcium and phosphorus in the circulating fluids, and the main factor in maintaining this balanced solution in the blood is the mineral content of the diet. Both cod liver oil and ultra violet rays have a marked therapeutic action in preventing and curing rickets. In both cases the beneficial influence seems to be due to the fact that the loss of calcium in the fæces is decreased. It seems probable that these therapeutic agents increase the percentage absorption of the deficient calcium. In imperfect diets cod liver oil and the direct sunlight are particularly valuable in the treatment of rickets. Sunlight and exercise are perhaps even more potent than cod liver oil. Dr. Orr closes his paper as follows: "Although I have made an attempt in this address to emphasize the importance of the inorganic constituents of the diet for the preservation of health, it is recognized that this is only one aspect of nutrition. The diet must be regarded as a whole in relation to all the needs of the body. The quality and quantity of the protein are important factors. Undernutrition with deficiency of energy-yielding constituents, and overnutrition due to excess are both factors in producing disease. Even the quantity of water ingested is of importance. At the same time sunlight, exercise, and psychological influences must all be taken into account."

THE PHYSICIAN'S EDUCATION

"That whosoever professeth himself a physician, is straightwaies beleeved, say what he will: and yet to speare a truth, there are no lies dearer sold or more dangerous than those which proceed out of a Physician's mouth. Howbeit, we never once regard or look to that, so blind we are in our deeper persuasion of them, and feed our selves each one in a sweet hope and plausible conceit of our health by them. Moreover, this mischief there is besides. That there is no law or statute to punish the ignorance of blind Physicians, though a man lost his life by them: neither was there any man known, who had revenge of recompence for the evil intreating or misusage under their hands. They learne their skill by endangering our lives, and to make proofe and experiments of their medicines, they care not to kill us." —*Pliny* (Holland's translation, 1601).

HARD words to be said of physicians in the good old days! Not said without prejudice, of course, and consequently not more detrimental to our reputation than the equally prejudiced utterances of more modern critics. At all times and in all places we, as a profession, have been spared the need of pious prayer for "the power to see oursels as ithers see us". Not all criticism has been unfavourable. With pleasing frequency things have been said of us which brought contentment, if not humility. But the hard words have perhaps done us the greater good.

Pliny had at least one advantage in his time which would be denied him if he lived to-day. It cannot now be said that there is no law or statute to punish the ignorance of blind physicians. Possibly he might complain that our laws relating to the practice of medicine fail to give that measure of protection against incompetent practitioners which is their obvious purpose, but that is no concern of ours. Public statutes should be administered by state authority. Members of the regular profession have at least been educated in accordance with statutory requirements, and it should not be expected of them to institute legal proceedings against those whose violation of the law is a matter of public concern.

It is of interest to note that this year is the septcentenary of the proclamation of Frederick II, which required that all who would practice medicine in the Sicilies must first submit to examination by the masters at Salerno. While not the first legal restriction upon medical practice, the edict of Frederick marked a distinct advance upon former regulations in that its application was general and that requirements were definitely specified. Before presenting himself for examination, the candidate "must have studied logic for three years, medicine and surgery for five years, and have practiced for one year under some experienced physician." (Garrison).

It was fitting that the masters of Salerno should have been chosen to determine the qualifications of aspirants to the medical profession, for the school of Salerno had for centuries held aloft the torch of learning and was the principal seat of medical education at the time of the Emperor's edict. It was here, too, some time in the twelfth century, that the title of doctor was first conferred on medical graduates, who were known as doctors of philosophy and medicine.

Seven hundred years ago, the medical course embraced three "pre-medical" years, five years of medical study, and one year of practical experience. There is a savour of modernness about this, and one cannot but wonder how the requirement was regarded in those remote times. It may at least be conjectured that then, as now, there were those who deplored the menace to the future of medicine which lay concealed in the "broad" curriculum.

It was contended by Aristotle that the philosopher should end with medicine, and the physician commence with philosophy. If we were permitted to construct our own definition of philosophy, we might be disposed to agree with the dictum. At any rate, no one will quarrel with the assertion that the business of the physician is quite too serious to be entrusted to ill educated men. In no other profession is lack of knowledge so sure to lead to

disaster. The 'draps and pills' of such men as Bobby Burns's Dr. Hornbrook may well have clad many a score i' their last claith. It is quite possible that the costliness of medical education both in time and in money, is keeping many desirable men out of the profession. Is it not also keeping out many undesirable men. And is this not of really greater consequence to the public? W. H. HATTIE

THE SWING OF THE PENDULUM

INTERESTING in science, and particularly in medicine where so many problems are still unsolved, is the frequent return to an old idea or concept which in the interval has been completely discarded as proven false. Often the old masters, even though lacking the more precise data which the introduction of laboratory methods affords, by keen vision and sheer judgment arrived at conclusions which recently have been renovated and found to be correct, at least to a certain degree. The temporary refutation of these prophetic nuggets of truth has been due, either to their being buried in piles of slag, fundamentally false, with the abandonment of which all went down into disbelief; or to their modification, perversion and misinterpretation to fit them into theoretical ideas, then prevalent, but now shown to be false. With the new methods of approach afforded by the advance of science, they have been re-discovered.

A striking example of this re-discovery of truth, is found in the teachings of Virchow that the cell changes in parenchymatous degeneration are essentially the result of increased cell activity, and due to an excessive supply of nutrient material. This conception was discarded in a great measure, through the work of Galeotti, and Cohnheim's experiments on inflammation: but with the advent of colloidal chemistry it has been revived to a degree, for we now realize that the parenchymatous swelling is in truth due to the resorption of excessive fluid as a result of an increase in the hydrophylic capacity of the cells. Another broader example, perhaps, is the old idea of body humours and their mixture in improper proportions called dyscrasias which dominated all medical thought up to the last century. These views were overthrown by the advent of cellular pathology, but now have reappeared in a modified sense in many of the teachings of immunology, and endocrinology. Even now we fall back upon a conception similar to that of our ancestors, as our best explanation of certain obscure systemic conditions.

Recently the work of several investigators in the realms of genetics has given our understanding of the importance of environment as an influential factor in development quite a different aspect, and in a sense has taken us back to the teachings of one of the first theorists upon evolution, namely St. Hilaire. He concluded that as the surface of the earth slowly changed, as the carbon-dioxide content in the air altered, as land appeared, and as marine animals left the water to inhabit it, they and their embryos responded to the new conditions, and those that responded favourably gave rise to new creations. Since the time of Weisman, however, the influence of environment has been considered negligible. To him all is preordained in the sex plasm. Mendel, by his demonstrations of so called unit-characters, etc., added strength to Weisman's views, until we have come to look upon the fertilized ovum as the miniature of the individual with all its characteristics established. Nothing else matters, all depends upon heredity.

Evidently we have gone too far. Professor Morgan by his brilliant work on the fruit-fly has shown that, if organisms with identical hereditary qualities are developed under different temperatures, different unit characters will appear. In other words, environment moulds the

ancestral qualities in the individual; it does not merely expand them.

Moreover, the investigations of Professor Boas on the changes in bodily form of the descendants of immigrants in America show that even the children of foreign parents who have lived a few years in America, tend to lose certain characteristics of their race and conform to what we might call an American type. For example, to take a specific characteristic, the head form of the east European Hebrews is short and round, represented by the index 84, while that of Sicilians is long, and represented by the index 78. Now the children of the former give measurements represented by 80, the latter, 81. There has been a convergence to a common American type. And perhaps even more striking and conclusive of environmental influence is the fact that the longer the parents have resided in America before the birth of the child the greater the approach to the American type.

We, therefore, must give considerable weight to the arguments of Professor Jennings, who captains the cause of environment to-day. To quote him: "The process of development shows itself not to be stereotyped, as at first appears to be the case; it varies with the changes in conditions. What any given cell shall produce, what any part of the body shall become, what the body as a whole shall become, depends not alone on what it contains—its 'heredity'—but also on its relation to many other conditions; on its environment..... Characteristics are not inherited at all; what one inherits is certain material that under certain conditions will produce a particular characteristic. If those conditions are not supplied, some other characteristic is produced..... All characters are as certainly due to the conditions of development as to the material of the germ cells."

He sees in the chromosomes of the fertilized ovum not the preordained plan of the individual, but inherited building material with numerous possibilities depending upon environmental carpentry; or, to use another metaphor, we are conceived with a certain inherited endowment of chemical reagents, the laboratory is stocked from the ancestral tree, but the reactions which follow and the compounds which result are modified by environmental conditions. If gold is in the stock, it will appear in the end-products, but often in quite different forms.

The pendulum is swinging back as it has swung so many times before.

THEO. R. WAUGH

MYELINOGENY AS APPLIED TO THE STUDY OF BEHAVIOUR

HUMAN behaviour according to Professor J. B. Watson is the composite stream of reactions arising from the combination of the vocal, manual, and visceral organizations in man. Genetically it comprises reactions of at least two varieties; unlearned reactions, usually called instinctive, and learned reactions, conditioned by the individual's experience and development. Investigation of these varieties of reaction in adult life is almost impossible, since adult behaviour presents itself as a mass of intricate patterns derived from a veritable mosaic of diversified factors in human adjustment. Recourse has, therefore, been had to the study of behaviour in the infant, where the stream of reactions can at first be observed in its simplest terms, and later from the tributaries of growing experience as each arrives. As many of these reactions, however, particularly the unlearned ones, bear an indelible phylogenetic imprint, it might be instructive and interesting to probe an earlier source—the evolutionary ancestry—by the study of animal behaviour. It has been assumed by many authorities that animal behaviour may be explained as reflex reactions, *i.e.*,

as sensory stimuli converted into motor effects with a mechanism to bridge the gap—to effect the conversion; all this being based on a structural foundation constituting the nervous system. Flechsig's fundamental myelogenetic law states that the myelinization of nerve fibres in the developing brain follows a definite chronological sequence, such that those fibres belonging to particular functional systems mature at the same time, that is, take on their myelin sheaths; in other words, that function follows myelinization. Basing themselves on this law, Tilney and Casamajor proceed in their investigations on young animals to demonstrate that the development of reactions in them is dependent on specific reflex arcs as they are in turn perfected by the completion of myelinization. Definite groups of fibres, such as the posterior longitudinal fasciculus, the predorsal fasciculus, the mesial and lateral fillets, the pyramidal tracts, the cerebellar tracts and other similar systems of fibres take on their myelin sheaths according to a fixed chronological schedule. This, though differing in different species, is fixed for each one. The question then is to establish the onset of function, impulse conduction, with the completion of myelinization. If certain behaviour components can be shown to be contemporaneous with this myelinization, certain important facts have been established, and we have a basis for further study. The method employed in this study had three aspects: first, the reactions of young animals were observed from birth, day by day, to maturity. The initial post-natal reactions were noted and subsequently each new reaction as it made its appearance. Each accessional reaction marked a critical stage in the development of behaviour. The chronological succession of these critical stages resulted in the final upbuilding of adult behaviour. Second, the central nervous system was removed from animals at the time of birth and at each critical stage thereafter. After removal the brain and spinal cord were prepared by the Pal-Weigert method and cut in serial sections. The third aspect of the study was the attempt to correlate the functional reactions at birth and in each critical stage which followed, with the myelinized fibre systems making their appearance at these several periods of behaviour development: The animals intensively studied were several litters of kittens; in addition to rats, rabbits, and guinea pigs. The present report, however, deals only with the development behaviour in the cat, and particularly with the early somatic motor reactions, limited to the first two weeks of the kitten's life. These reactions include: 1. The Postural. 2. The Crawling Approach. 3. The Sucking. 4. The Synergizing. 5. The Primitive Escape. 6. The Eye-Opening, and 7. The Eye and Head Turning Reaction in Visual Pursuit.

There is a detailed analysis of each of these reactions followed by a summary of the neural mechanisms involved. The summary for one of these, the primitive escape reaction, which appears on the seventh day, is as follows:

1. Receptors. End organs in skin, muscles and joints. Adequate stimulus; hurtful, cutaneous, muscular or joint factors.

2. Afferent nerve fibres. Sensory divisions of the cranial and spinal nerves.

3. Receiving nuclei and ascending tracts. Dorsal horn of spinal cord grey matter, (to some extent probably; the nucleus of Goll and Burdach. Conduction by spinothalamic tract and mesial fillet to some extent).

4. Conversion centre. Reticular formation of midbrain in which myelinized collaterals of spinothalamic tract ends.

5. Intersegmental efferent conduction fibres, the mesencephalic reticulospinal fibres in the predorsal bundle.

6. Neuromuscular effector fibres; the motor divisions of spinal and cranial nerves to the neck, trunk and limbs.

In conclusion it might be said that this extensive investigation by two of the foremost of the (rather few) neurological laboratory investigators of this continent, is a valuable contribution to this subject, and the original article well merits the close perusal of all who are interested in neurological science. NORMAN VINER

THE DOCTRINE OF MALTHUS

WE note that in the *Health Bulletin* issued last August by the Department of Public Health, Toronto, Dr. Hastings calls attention to the necessity in the present period of the world's history of putting into force the doctrines of Malthus. Benjamin Franklin's views are quoted on the inevitable result of permitting the rapid increase of population while facing the limited possibilities of food production. It would appear as if nothing short of a calamity will arouse mankind from the hypnotic influence of an unwarranted optimism Professor East of Harvard has lately contributed an article entitled "Mankind at the Crossroads" in which this great increase of population is dealt with very practically from every angle. In it he discusses the limitation of the arable land area of the earth; the chemistry of the soil; intensive farming; available fertilizers; irrigation; and the possibility of controlling the annual increase in population. He states that in the year 1800 the entire human race numbered only eight hundred and fifty million; during one hundred years this population had increased to one billion, seven hundred million. The annual increase was estimated at about twelve million. Converting this increase of population to terms of necessary food production the farmers must provide the world each year with some twenty-three billion pounds of food stuff more than was provided the previous year According to the statistical records of Professor G. H. Knibbs, one of our most eminent population statisticians, the current increase of the world's population is 1.16 per cent., nearly twenty million a year. That is, there survive twenty million every year of those born, over and above those who have failed to live out the year. Knibbs estimates that at the present rate of increase the population of the world doubles every sixty years.

At the close of the recent Conference of British Scientists held in Toronto an evening was devoted to eugenics and heredity, and the rôle they play in securing the advancement of our race. The speakers, after pointing out the pitiful optimism with which nations were speeding down the path that leads to race degeneracy, race deterioration with an excess of unemployable population in which a large percentage were mentally sub-normal, suggested two remedies for Canada. First, selective immigration. In this connection the people of Canada were warned not to fall into the error that the United States had fallen into in the past, in permitting all classes, regardless of their physical and mental fitness, to pour into their country. Canada certainly should adopt the policy of restricted immigration. The second remedy was that of intelligent birth control, particularly as regards the reproduction of the mentally and physically unfit. The carrying out of the principles of eugenics is simply wise foresight to ensure the future of democracy, that is, "that all men are born with equal rights and duties." The wisdom of the British psychologist as expressed by Tennyson in his memorable lines,

> "So careful of the type.....
> So careless of the single life,"

has been changed into a fatal reverse;

> "So careful of the single life.....
> So careless of the type;"

all of which has a tendency to jeopardize the race at the present time.

To-day we are spending on our asylums, hospitals and jails more money on the various grades of mentally subnormal, children and adults, imbeciles, morons, and border-line cases, than on those of normal mentality. Twenty-five to fifty per cent. of all those incarcerated in penal institutions, reformatories, and almshouses are mentally subnormal and are therefore more sinned against than sinning. We have permitted them to be born and thoughtlessly we are permitting them to reproduce There is no greater curse on posterity than that of bequeathing them an increasing population of imbeciles. Herbert Spencer wrote, "fostering the good-for-nothing at the expense

of the normal and good is deliberate storing up of miseries for future generations."

The Very Rev. Dean of St. Paul's Cathedral, Dean Inge, in an address delivered recently says: "The doctrine of birth control is essentially Christian. It is a great part of our work to press home to the public mind the alternative that lies before us, either rational selection must take the place of natural selection, which modern government will no longer allow, or we must go on deteriorating. When we can convince the public of this, the organized opposition will soon collapse or become ineffective. 'Do men gather grapes of thorns or figs of thistles. A poor tree cannot bring forth good fruit, neither can a good tree bring forth evil fruit. Every tree which cannot bring forth good fruit is hewn down and cast into the fire.' If we believe this and do not act upon it we are sinning against the light and will most certainly have to pay the penalty."

NECESSITY FOR EDUCATION OF THE PUBLIC IN THE DETAILS OF PERSONAL HYGIENE

SIR GEORGE NEWMAN, Chief Medical Officer of the Ministry of Health in England, has recently issued an important memorandum on the necessity of the education of the public in health matters, and emphasizes the importance of public opinion as a driving force behind all forms of hygienic measures. Compulsory education in schools, in his opinion, has probably contributed to progress in the understanding and interpretation of the laws of health. More reasonable dress, the disappearance of tight clothing and trailing skirts and a far larger amount of outdoor exercise, more active amusements and athletics, have brought an immense improvement in the personal health of girls and women, an improvement that has abolished chlorosis, and has materially affected the whole standard of their health. Public opinion has also effected a definite advance in the standard of cleanliness, personal and domestic, and a rapid diminution in the dirty and unsanitary habit of spitting. Public opinion, however, is still in need of further education on the whole subject of the applications of preventive medicine as referring to the individual, and it is noted with pleasure that the prevention of disease is becoming more and more a personal concern than a matter dependent on the authorities. Neglect of the common cold, and thoughtless behaviour, favouring its direct transmission to others is a widespread defect. Sufferers from colds breathe, sneeze and cough in other people's faces, careless of the fact that they are highly infectious. The workshop and the living room too frequently are overheated and ill ventilated, and thus predispose to respiratory disease and infection.

Another matter on which public education should be pushed is a knowledge of food values and the requirements of the body; at the present much money is spent on unsuitable food, while cheaper and more wholesome foods are neglected Only by teaching what, when and how to cook and eat and how to protect food from contamination will we be able to preserve in an effective condition the functions of the digestive system. Dental decay is the cause of much ill health, nearly all of it preventible. Medical and dental school inspection has shown that more than half the school children at eight years of age suffer from caries and many of them from oral sepsis. In adolescents and adults this evil continues and is frequently exaggerated, producing many terminal conditions; impaired digestion, toxæmia, and neurasthenia. The habitual and thorough cleansing of the teeth the last thing at night, and the use of proper food, will help to keep the teeth clean. Periodic dental inspection is a good means of preventing trouble.

Editorial Comments

THE 1925 ANNUAL MEETING OF THE ASSOCIATION AT REGINA

The Regina and District Medical Society has its plans for the Annual Meeting of the Canadian Medical Association, which is being held in Regina in 1925, already well under way. The medical men of Regina, and in fact of the whole of Saskatchewan, appreciate the honour conferred upon them in having the Canadian Medical Association hold an annual meeting in Regina.

The members of Regina and District Medical Society, upon whom devolves the task, albeit a pleasant one, of arranging for this meeting fully appreciate their responsibility, but their colleagues all over Canada, may rest assured that they will endeavour to discharge the same in a way to meet with their approval, and that nothing in their power will be left undone to make the 1925 meeting a real achievement.

A strong Executive Committee from the Society has been in office since early in October and considerable spade work has already been done. Suitable quarters for the sessions, for luncheons, etc., have been decided upon, and plans relating to programme, exhibits, entertainment, etc., are well advanced.

Further details of arrangements will be published from month to month, but in the meantime, the Regina Society wishes to ask the medical men of Canada to plan NOW to come to the Queen City of the prairies in 1925. A real big meeting may confidently be expected.

W. A. D.

THE SUCCESS OF ACADEMIC INSTITUTIONS

Sir Isambard Owen in an address to the students of St. George's Hospital at the opening of the winter session, said that the strong impression left on his mind after a study of the origin and development of universities in Europe was, that the reputation and success of an academic institution was largely proportional to the degree in which it succeeds in creating a sense of corporate existence among its members and a corresponding corporate pride. Such sentiments imply not only a feeling of fraternity among them, but a sense of common interest in the credit and reputation of the community as a whole. Where such sentiments prevail the effective value of the individual appears to be perceptibly enhanced to the benefit of himself, of the institution and the world at large.

We commend these sentiments to the students of all our Canadian universities and to the members of our Association.

THE ETIOLOGY OF FATIGUE

The problem of fatigue and its cause is one that concerns the employer of every form of labour. It is recognized by all that the output from the labourer lessens if the day's work be so long as to induce fatigue, or if the work be speeded up to a rate that is unduly fatiguing. Even the schoolmaster finds it difficult to make progress with fatigued school children, and the physician rarely carries a patient through any prolonged illness without observing indications of what weariness as well as weakness means to the sick

To define fatigue is more difficult than to observe its effects. It is stated in text-books that fatigue is loss of muscular irritability or contractility brought on by successive functional activity. Fatigue may, therefore, be regarded as a depletion of the nervous store of energy, and restitution of the loss takes place gradually by rest. Half a century ago the German physiologist Ranke in explanation of the symptoms expressed the belief that certain substances were formed in the muscle during contraction which more or less inhibit its activity. Among these products the more important are lactic acid and lactates, carbon dioxide and acid phosphates, all met with in muscular tissues. A more startling announcement was made by Weichardt some years ago that there is found in fatigued muscles not merely those recognized products of muscular action but a more specific substance, a true fatigue toxin which was chiefly responsible for the phenomena of fatigue. The climax of several widely discussed investigations was reached in the alleged production of an antitoxin for this toxin, for which a patent was issued by the United States Patent

Office. Unfortunately all these statements were founded on utterly unconvincing evidence. Weichardt observed also a variety of untoward symptoms when extracts of the muscles of greatly fatigued animals were injected into test animals. These symptoms included reduction in temperature, slowing of respiration, sleep, and in some cases death. *The Journal of the American Medical Association* in a recent editorial calls attention to the fact that Lee and Aronovitch of the College of Physicians and Surgeons, New York, have recently demonstrated that the serum from the muscles of non-fatigued animals produced the same effects as Weichardt's fatigue juice, and they, therefore, question Weichardt's assumption of a specific toxin of fatigue. For the present rest must be regarded as the best antitoxin to antagonize the symptoms of fatigue.

REFERENCE

LEE, F. S. AND ARONOVITCH, B., on Weichardt's supposed "Fatigue Toxin." *Am. Jour. Physiol*, 69:92 and 101, June, 1924.

PROFESSOR PAVLOV

Professor Ivan Petrovitch Pavlov has attained his seventy-third year. The shadow cast by the revolution in Russia has never been so deep as to obscure the brilliance of this great man's achievements, nor, indeed enough to repress them. We learn that Professor Pavlov's life since 1917 has been one of almost overwhelming hardships. He was compelled to perform the meanest drudgeries of existence in order to support his family, and at times suffered severely from lack of food: but still he managed to carry on his scientific work, and to teach. In a recent biographical sketch by Professor Boldyreff we are given a picture of him surrounded by pupils whose devotion and scientific ardour were tested to the very uttermost by the physical privations of cold and hunger; in winter their building was unheated, the water pipes were frozen, and their light was from burning faggots only.

Professor Pavlov will live as a great figure in physiological research, but he will also stand with those who have been through great tribulation and have conquered it. This requires greatness of soul no less than the intellectual strength of which his work is so eloquent. H. E. M.

THE SURGICAL TREATMENT OF ANGINA PECTORIS

The treatment of angina pectoris by the surgical measures advocated recently has been severely criticized by Sir James Mackenzie in an article which appears in the *Lancet* of October 4th. He writes as follows: "An impression has gone abroad among the public that the feats of the surgeon are to be regarded as an indication of the progress of medicine. When operations are carried out with a full knowledge of the morbid conditions which it is intended to relieve, and with a knowledge of the functions of the structures which the surgeon cuts in his operation, there may be some reason for regarding such surgery as an example of the progress of medicine, but when the surgeon is profoundly ignorant of the morbid condition for which he operates and of the functions of the structures which he mutilates it is impossible to conceive anything more detrimental to progress." Sir James Mackenzie emphasizes the fact that our knowledge of the functions of both the vagus and the sympathetic are still comparatively imperfect. He considers it as a reflection on our medical knowledge that such a universal symptom as pain should be so little understood. This is especially true of angina pectoris. Analyzing the records of more than 2,000 patients who suffered from heart pain, Mackenzie found that in one half of the records the histories were so incomplete as to make them of little value. In a considerable portion of the remaining half the pains did not appear to be associated with any actual disease of the heart, and after the nervous condition which seemed to be responsible for the heart pains had improved, the pains ceased and the patients made a complete recovery. In no instance did a patient in this group die later of disease of the heart. In the remainder of the cases forming the larger group, however, the pains in the heart were associated with definite morbid changes. In many there was a narrowing of the lumen of some part of the coronary artery by which the supply of blood to the muscle was diminished, thus impairing functional efficiency and favouring degenerative and destructive changes. In Sir James Mackenzie's opinion the pain in angina pectoris must serve definitely as a warning signal, and when the nerves that carry the sensation of pain are cut, this warning signal is done away with. The pain itself is not dangerous to life but any effort giving

rise to this pain certainly is. To remove such a valuable indicator in the present state of our knowledge without otherwise doing any important good is, in Sir James Mackenzie's opinion, extremely hazardous and bad practice.

THE VALUE OF HEXAMINE AS AN ANTISEPTIC IN SYSTEMIC INFECTIONS

The value of hexamine as a urinary antiseptic is recognized by all, but its value in systemic disease administered either orally or intravenously is extremely doubtful. Nevertheless, its administration in various systemic infections has been recommended in textbooks and by many well known authorities. A scientific basis, however, for the use of this drug as a systemic antiseptic is quite lacking. It is, perhaps, conceivable that, under certain conditions, this drug might exert an antiseptic action due to the liberation of formaldehyde in the blood and tissues. In view of this possibility and also of some favourable clinical reports, the determination of the problem whether any scientific foundation existed for the use of hexamine as a systemic antiseptic was deemed worthy of an extended study. This has recently been undertaken in the Department of Pharmacology in Stamford University, and a full report appears in *Archives of Internal Medicine*, October, 1924. The investigation was planned along the following lines: (1) a brief study of the urinary excretion was made to determine the amount of the drug that was lost in its passage through the body; (2) the extent of the hydrolysis of the drug with liberation of formaldehyde which took place in solutions and serum mixtures of known chemical reaction, including actual alkalinity; (3) the extent of decomposition in the blood of animals under conditions specially favourable to such decomposition, as in acidosis; and (4) the excretion of formates in the urine of human subjects as an index of the decomposition of the drug remaining over longer periods in the tissues. The conclusions which were arrived at are as follows: The incomplete and variable urinary excretion of hexamine is accounted for by the loss of the drug either by hydrolysis or by the decomposition in the alimentary tract, due chiefly to the gastric acidity. Any formaldehyde liberated in the stomach is not absorbed. The decomposition of the drug in the tissues as indicated by the excretion of formic acid is very slight and accounts for only a very small fraction of the loss.

There is no good basis for the use of hexamine orally or intravenously as a systemic antiseptic in the various infectious diseases or localized infections.

We are in receipt of a small but well illustrated pamphlet giving information as to the aims, methods and equipment of the Preventorium for Children founded by the Imperial Order Daughters of the Empire in Toronto to secure for delicate but non-tuberculous children the great advantages of fresh air, good food and rest. Such children are taken out of unhealthy surroundings and given suitable treatment for a period of three to six months. It has been established since 1913. Under the advice and assistance of Colonel Gooderham an old mansion on an estate of four acres has been remodelled and put in suitable condition for carrying on this most excellent work, under experienced medical care. Since its foundation in 1913 the institution has grown until it now includes besides the original building a babies' pavilion, a nurses' residence, an infirmary, an open play house and gymnasium, together with a garage and a fully equipped laundry. We would be glad to chronicle the founding of similar institutions in the neighbourhood of every large Canadian city.

Hematuria as a Symptom of Systemic Disease.—E. A. Locke and G. R. Minot, Boston, with very rare exceptions, find the presence of blood in the urine is always a symptom of some lesion in the genito-urinary tract. When hematuria is due to systemic disease that does not primarily affect the urinary organs, the principle also holds true, since there is usually some anatomic change to cause the bleeding. The systemic conditions in which hematuria may arise are: diseases and conditions of the hematopietic system (including hemophilia, purpura haemorrhagica, lymphosarcoma and other conditions); diseases and conditions resembling those associated with pathologic conditions of the blood (including idiopathic purpura, simple symptomatic purpura, scurvy and familial hernia); infections; conditions causing chronic passive congestion of the kidneys; toxic agents, and miscellaneous conditions.—*Jour. Am. Med. Ass.*, Oct. 25, 1924.

Men and Books

THE TREATMENT OF SCURVY

It would be very interesting and profitable to search out the records of the past with the hope of discovering exactly how it came about that some of our useful remedies, empirically used for centuries or generations, were first hit upon. In many cases, no doubt, it was a question of repeated "trial and error." We know now that it is because they contain the anti-scorbutic factor "C" that lime-juice and lemon-juice are valuable in the prevention and treatment of scurvy, but the fact of their value was discovered three centuries ago.

One of the earliest, if not the very earliest, descriptions of the disease in the English language is given by George Whetstone (1544-1600 +-) in *The Cures of the Diseased in Remote Regions, Preventing Mortalities, incident in Forraine Attempts, of the English Nation.* Imprinted at London by Felix Kingston, for Humfrey Lownes, 1598, 8°, pp. 28, a small brochure dedicated to Queen Elizabeth. The chief of his "Preservations against the Scurvy" is outlined in the following:—

"Also it is a certaine and assured medicine against this Disease, to have such quantitie of Beere brewed with Graynes and Long Pepper, as in the morning twise every weeke there may be given a good draught to a man, proportioning three quarters of a pound of Graynes, and three quarters of a pound of Pepper to a hogshead of Beere. But white wine or Syder boyled and brewed with Graynes and Long pepper, in like quantitie, is very singular good, and it is not fit to suffer the gums to abound with flesh: and therefore sometimes let them bleede, and cleere them with strong vinegar."

In his book, *The Surgeon's Mate, or Military and Domestique Surgery, with a Treatise for the Cure of the Plague*, London, 1639, folio, John Woodall (1556?-1643) describes the disease very fully from his own extended personal observations. This has been said to be the earliest book in which lime-juice is recommended as a treatment, but as the writer of Woodall's life in the *Dictionary of National Biography* states, Admiral Hawkins had already used it in 1593. Still scurvy raged at sea in the ships of the Royal Navy and on merchantmen. After circumnavigating the globe and losing seventy-five per cent of his crew from this disease, "the Father of Nautical Medicine," James Lind (1716-1794), was led in 1754 to write his *Treatise on the Scurvy*, in which he strongly urges, after "conclusive evidence of its worth," that lemon-juice should be employed. Lind died before this measure was put into effect, for it was not until 1795, when Robert Blair (*d.* 1828) and Sir Gilbert Blane (1749-1834) as Commissioners of the Board for Sick and Wounded Seamen succeeded in banishing scurvy from the navy by the issuing of regulations for the universal use of lemon-juice.

The other day, an English physician visiting this country, pointed out to me a treatment for scurvy which he had seen mentioned in Parkman's *Montcalm and Wolfe* (London, MacMillan & Co., 1884, vol. ii, p. 236-237). The passage is worth quoting:—

"Towards the end of June, he [Amherst] reached that valley of the head of Lake George which for five years past had been the annual meeting-place of armies. Here were now gathered about eleven thousand men, half regulars and half provincials, drilling every day, firing by platoons, firing at marks, practising manoeuvres in the woods; going out on scouting parties, bathing parties, fishing parties; gathering wild herbs to serve as greens, cutting brushwood and meadow hay to make hospital beds. The sick were ordered on certain mornings to repair to the surgeon's tent, there, in prompt succession, to swallow such doses as he thought appropriate to their several ailments; and it was further ordered that 'every fair day they that can walk be paraded together and marched down to the lake to wash their hands and faces.' Courts-martial were numerous; culprits were flogged at the head of each regiment in turn, and occasionally one was shot. A frequent employment was the cutting of spruce tops to make spruce beer. This innocent beverage was reputed sovereign against scurvy; and such was the fame of its virtues that a copious supply of the West

Indian molasses used in concocting it was thought indispensable to every army or garrison in the wilderness. Throughout this campaign, it is repeatedly mentioned in general orders, and the soldiers are promised that they shall have as much of it as they want at a half-penny a quart."

There was plenty of scurvy during the campaign, for the troops left in Quebec when Murray marched out of the city in 1760, were described in the diary of the "hyperbolical Sergeant Johnson" as "half-starved, scorbutic skeletons."

Whether spruce beer contains an anti-scorbutic substance is hard to say without recourse to animal experiment. It has been shown, however, that an anti-scorbutic principle is abundant in germinating pulses (or cereals), in fresh cabbages, onions, and carrots and in fresh oranges and lemons. To a less extent, it is also present in potatoes, and a small amount is found in fresh meat, dried vegetables, and fresh cow's milk.

If Whetstone's beverage is unknown, at least a spruce beer is still made in the Provinces of Quebec, New Brunswick and Nova Scotia, and is consumed in considerable amounts, but not wholly because of its supposed virtue against scurvy!

A. M.

Magnesium Sulphate as a Cause of the Evacuation of the Gallbladder.—The question discussed by Iwao Matsuo, Kioto, Japan, is whether the dark B-bile is the content of the gallbladder or of some other organ. Assisted by Dr. H. Tsuji, Matsuo observed the emptying of the gallbladder. The abdomen of the patient was opened under local anaesthesia only. The gallbladder, large as a goose egg, was exposed. Two hours before the operation, the duodenal tube was given to the patient, its proper location being determined by the Roentgen ray. During the operation, the duodenal content mixed with the typical bright yellow bile was flowing out. Then 40 cc. of a 33 per cent magnesium sulphate solution was introduced into the duodenum through the tube. Five minutes afterward, the typical dark brown bile, the so-called B-bile, began to appear; the amount was 80 cc.. Finally, after thirty-five minutes, the bright yellow bile ran out again. At first the gallbladder was entirely filled, and it seemed so expanded that the blood-vessels could not easily be seen. However, as the magnesium sulphate was given, and the dark, thick bile gradually dribbled out, the gallbladder was no longer expanded, and, gradually decreased in size. The so-called contraction was not observed, nor did the bladder collapse like a balloon from which the air was released. Forty cubic centimetres of a 1 per cent azorubin S solution was then injected into the gallbladder. During this procedure, the bile from the duodenal tube had no trace of any red colour. Forty cubic centimetres of a 33 per cent magnesium sulphate solution was then sent through the tube again, and this time it was observed that the gallbladder contracted very clearly and that almost all the dye solution was evacuated in a short time. Judging from these results, beyond any question, the bile flows out from the gallbladder into the duodenum by reason of the local application of magnesium sulphate. Under the same conditions as those stated in Case 1, observations were made. The gallbladder was filled with 35 cc. of a 1 per cent azorubin S solution, and the bile that ran out was not stained red. The instillation of 40 cc. of a 33 per cent magnesium sulphate solution was made, and two minutes afterwards bile, coloured deep red by dye, began to flow out; in the first five minutes, 45 cc. was recovered, and in the next five minutes 42 cc. At this time, the gallbladder became small, although nothing like contraction could be observed to be taking place. From these facts it may be concluded that when a magnesium sulphate solution is introduced into the duodenum in the case of a healthy gallbladder, the bile reservoired there is ejected by the relaxation of Oddi's sphincter; under such conditions the contraction of the gallbladder occurs simultaneously. Sometimes, the B-bile starts to flow out because of the pressure of the bile stored in the gallbladder, and the obvious contraction cannot be seen.—*Jour. Am. Med. Ass.*, Oct. 25, 1924.

Abstracts from Current Literature

MEDICINE

The Effect of Iodine in Exophthalmic Goitre. Starr, Paul; Walcott, Henry P.; Segall, Harold N., and Means, James H. *Archives of Internal Medicine*, Sept. 15, 1924.

This paper is a continuation of the report on a study by the authors of the various forms of therapy in exophthalmic goitre that have been tried at the Massachusetts General Hospital. Their results are similar to those obtained by Plummer and Boothby in the Mayo clinic. They remind us that Troussean in 1863 inadvertently gave a patient with exophthalmic goitre tincture of iodine in place of tincture of digitalis, and obtained a remission of the symptoms. The pulse rate dropped from 140 per minute to 90 per minute. On substituting the tincture of digitalis the pulse rate went back to 150 per minute, and Troussean at once returned to iodine. The cases studied numbered forty-two. Seventeen were out-patients who reported regularly, and twenty-five who were kept in bed continuously in hospital. No patient of either group was considered to have adenomatous goitre with hyperthyroidism. The drug used was liquor iodi compositus, U.S.P. The usual dose was fifteen drops three times daily well diluted in water, after meals. One patient was given a solution of iodine in mineral oil without potassium iodide, and the result was similar to those obtained with the compound solution of iodine. The duration of medication varied from ten days to six months in individual cases. The effects of treatment were followed by determinations of basal metabolic rate, pulse, and weight.

An analysis of data showed an abrupt remission of the disease, as evidenced by fall of metabolic and pulse rates, increase in weight, and diminution of symptoms in more than 80% of the cases. This was the immediate result of the administration of iodine. The remission took place most promptly in patients who were resting in bed in hospital. It was less rapid and less marked in the out-patients. The remissions were in many cases as rapid and extensive as those which follow subtotal thyroidectomy. The average rate of detoxication was about 3.7 points daily. This is nearly the same rate of detoxication that Segall and Means found after operation. In 48% of the authors' cases the compound solution of iodine had the same immediate effect on the metabolic rate as removing five-sixths of the gland. The authors consider that the demonstration of iodine as the causal agent of this remission was completed by the fact that substitution of a placebo during the remission was followed by abrupt recurrence, and that if iodine was again started, a second remission was produced.

They have come to the conclusion that a remission is not maintained by the continued administration of iodine when the patient returns to daily life. He tends to reach the original level of basal rate, etc., in from one to two months, even if the dosage throughout is maintained. Because of this recurrence under iodine they believe that as now used iodine is not a cure for exophthalmic goitre, and that it should not be used with this expectation. The way in which iodine produces a remission is not clear. They do not consider Plummer's theory, that it lies in the oxidizing of abnormal thyroxin as entirely convincing. The amount of iodine given is relatively great as compared with the amount of thyroxin iodine (2 mg. daily) required to keep the body at a basal rate of plus 50. It was also noted that a patient with exophthalmic goitre who had been taking iodine suffered from a rapid rise of metabolic rate and increase of toxic symptoms if the iodine was omitted. Also that this happened whether or not the omission took place while the iodine is producing its first effect or during the secondary recurrence with continued administration.

The important point brought out by the above finding is that if iodine is used as a preoperative preparation, whether it is successful or not, no gap between medication and operation should be allowed to occur. Some of the patients showing exophthalmos and in whom a hyperplastic thyroid was later found at operation, did not show the iodine remission. No

criterion for accurately differentiating this unsuccessful group was found.

Their conclusions are as follows:—(1) Iodine by mouth will produce abrupt remission of most cases of exophthalmic goitre. (2) The remission is often as rapid and extensive as that following subtotal thyroidectomy. (3) It is believed that iodine is the causal agent of this remission. (4) Iodine alone, as now used, has not been shown to be sufficient to suppress the disease permanently. (5) After a patient with exophthalmic goitre has been taking iodine a rapid rise of metabolic rate and increase of toxic symptoms will occur within one or two weeks if iodine is stopped. (6) In some cases of exophthalmic goitre iodine has no observable effect. L. C. MONTGOMERY

Carbon Monoxide Hazard in Public Garages. Campolini, E. *Jour. of Industrial Hygiene*, July, 1924.

The writer believes that the presence of carbon monoxide in automobile exhaust gases may constitute a health hazard to workers in garages, especially as the expansion of the automobile business is leading to the growth of garages in which the conditions are far from ideal. A survey of garages in New York City was accordingly planned, but considerable difficulty was experienced in carrying it out; general interest in carbon monoxide poisoning was shown, but only in a comparatively small number of the workers was there a willingness to part with specimens of blood for examination. Over 157 garages and service stations were inspected, but only forty-two men allowed themselves to be examined, and even these would not submit to a second examination, for comparative study.

Analysis showed that 69.5 per cent of these workers gave a positive test for carbon monoxide in the blood, but there were marked variations in the degree to which it was present. Sometimes it was not present, even when the garage air contained it in definite concentration; and again, it might be shown in the blood and yet not exist in the air appreciably. These discrepancies depended on the closeness of the mechanic to the exhaust pipe: a man testing and adjusting a car for an hour could absorb enough of the gas to show a carboxyhaemoglobin saturation of 22 per cent, whilst the carbon monoxide in the garage air itself was less than 4:10,000. Headaches were a common symptom amongst the men, and there was a tendency towards an increase of the pulse. In spite of the general pallor noted amongst them, sometimes to a marked degree, the haemoglobin content was found to be normal or nearly so. It is noteworthy that 77.5 per cent of the garages inspected showed carbon monoxide in varying concentrations, a fact which emphasizes the importance of proper ventilation.

He recommends (1) the application of state laws; (2) the general adoption of the suggestion made by Drs. Yandall Henderson and Haggard that automobiles should have vertical exhausts; (3) that employees should be warned of the danger from carbon monoxide and should be instructed in first aid measures; (4) chronic carbon monoxide poisoning should be made a compensable disease. H. E. M.

The Need for Scientific Study of Delinquent and Problem Children and Provision for an Adequate Mental Hygiene Programme in the Schools. McCord, C. P. *Mental Hygiene*, April, 1924.

That a person suffering from a conduct disorder, standing before the bar of so-called justice, should be studied from every point of view, and a diagnosis made of his case before justice has been administered, has been recognized by a relatively small group of people. The writer enlarges on this text. For want of scientific study of delinquents, especially juveniles, much of the money devoted to institutions and other philanthropic agencies is wasted. A reform institution should be a laboratory for the study of conduct disorders. There should be more careful study of individuals with conduct disorders before committing them to institutions. The writer gives instances of children showing post-lethargic-encephalitic conduct disorders being sent to children's courts and even reform schools, the pathological conditions not having been recognized. It is not enough to study delinquents from the physical neurological, endocrinological, and psychiatric standpoints. We must study the causes of conduct disorder; the environmental picture, the instinctive life, and the mechanisms producing this or that type of behaviour.

The writer finds in the emotional life of these boys and girls the explanation of most of their delinquent trends. The emotional side of their personality and the various conflicts going on within the field of their instinctive life must be understood, and treatment conducted accordingly. Too often unfortunately the repressed emotional life of parent or teacher renders him blind or antagonistic to the manifestations of the emotional life of the child; and this blindness leads to the development of unpleasant modifications of the child's character which later bring him into conflict with his fellows. The mechanisms by means of which the instinctive cravings of man find their satisfaction are the warp upon which the woof of conduct is woven, and no parent or teacher, judge or probation officer can hope to render full justice to the child unless he or she has a knowledge of these psychological truths.

In brief, the writer urges a better understanding of the psychology of childhood whether average or delinquent; that the child should be appraised as he really is, with full consideration of his instinctive tendencies, and not as sentimental educationalists would idealize him. There should be active co-operation between agencies dealing with delinquents in their pre-institutional, institutional, and post-institutional periods. The process of character-building, which after all is the object of treatment, can thus be carried through with better results than by the present haphazard methods. Mental hygiene should be a real thing in the public schools. It should be taught to medical students. Doctors, social workers and teachers must be trained along the new lines of thought. So-called formal education, he says, has been a sort of kid glove affair that has really shirked its duty. Educators need to realize that the child is a little animal whose mental activities are largely expressions of his instincts.

At the close of his paper Dr. McCord makes an appeal for a well developed mental hygiene programme to be carried out in the public schools through co-operation of parents, teachers, psychiatrists and other agencies, to prevent the development of conditions that make so many welfare organizations necessary.

A. G. MORPHY

Prophylaxis Against Post-operative Pulmonary Lesions by the use of Antipneumococcus Serum (Prophylaxie des Pneumopathies post-operatoires par la sérotherapie Preventive). Caf, L. and Pauly, N. *Presse Médicale*, Sept. 24, 1924.

Surgical operations on the upper abdomen are specially liable to be followed by pulmonary complications. There is in these cases a weakening of the natural defences of the lung, owing to interference with the pneumogastric nerve. There is an ascending neuritis which affects the pulmonary fibres and sometimes the cardiac ones. Tachycardia after operation is due to neuritis of the cardiac branches.

Ether, provoking as it does, an abundant secretion of mucus in the air passages, even down to the smallest ramifications, predisposes to infection. The bacterial cause is the pneumococcus. Empyema and gangrene of the lung are nearly always due to some special factors, and the bacterial cause is not so simple.

One out of every six of the authors' stomach cases was affected with a pulmonary sequela until they began giving antipneumococcic serum during the operation. Besredka showed that by giving the injection during general anaesthesia anaphylactic shock was avoided. Certain symptoms appear as a result of the serum in 8% of the cases, six to ten days after its administration. There may be flushing of the skin, urticaria, pruritus, fever, headache, etc. These symptoms were treated with aspirin which acted favourably, especially on the headache and fever. Adrenalin and calcium chloride were tried, but had no noticeable effect. Post-operative pulmonary complications were much less common. W. B. HOWELL

The Intravenous Use of Mercurochrome-220 Soluble in the Treatment of Pneumonia in Children. Freeman, W. T. and Hoppe, L. D. *Amer. Jour. of Dis. of Children*, September, 1924.

Twelve cases of severe pneumonia complicating measles were treated by intravenous injections of 1 per cent solutions of the drug giving 0.005 gm. per kilo of body weight. A few hours after the injecton there may be a slight rise in temperature, followed by several large stools which may be stained by the drug;

this, however, is principally excreted by the way of the urine, which becomes a pale pink.

From two to four hours after the injection there is usually a sharp fall in temperature, which may simulate a crisis. The appearance of the child changes from one of desperate illness to comparative comfort and quiet. This change in the appearance and demeanour was noted even before there was much change in temperature or pulse. Usually a single injection is sufficient, but a second may be given in twenty-four hours, if necessary.

Case reports of the twelve patients are appended, of whom ten recovered. The authors observed that cases of pneumonia treated with mercurochrome ran much shorter courses than the cases of equal severity where the drug was not used. R. R. STRUTHERS

Studies on the Roentgen-Ray Treatment of Whooping Cough. Bowditch, H. I.; Leonard, R. D. and Smith, L. W. *Amer. Jour. of Dis. of Children*, September, 1924.

This article is a continuation of the work on whooping cough that these authors have been carrying on in the past two years. The present study concerns twenty cases, chosen at random, that were treated and intensively studied in the wards of the "On Shore Department of the Boston Floating Hospital." The patients were chiefly infants and were seen as early in the disease as possible.

The children were treated by doses of x-ray and the effect on the number and severity of the paroxysms, and on the leucocytosis noted. These results are shown graphically. On the day of admission these twenty patients had 288 severe paroxysms. On the fifth day after treatment was started only 157 paroxysms were recorded, and in general they were much less pronounced in severity. By the tenth day this was further reduced to 96, and at the end of two weeks only 43 paroxysms were noted. The blood findings suggest that there is an initial lymphocytosis which reaches its maximum at the third week and then drops gradually back to normal. The drop in the total number of white cells and in the relative preponderance of lymphocytes corresponds to the clinical improvement noted after radiation.

Cultures from the sputum or larynx were positive in only 30 per cent of the twenty cases, and no positive cultures were obtained after the third week of the paroxysms. Three cases of whooping cough complicated by bronchopneumonia were treated by x-ray and diathermy with favourable results. The authors conclude that vaccine is efficient in preventing the disease in 85 to 90 per cent of contacts and that the Roentgen-ray supplemented by diathermy and medication is a valuable means of treatment.

Dr. Leonard describes the technique used. The total amount of x-ray used is well under the erythema dose. The characteristic finding at the height of the disease is a definite hypertrophy of the glands about the root of the lung and a peri-bronchial thickening involving the larger bronchi, particularly those extending into the right lower lobe, which seems particularly characteristic of pertussis. It has not yet been demonstrated that these enlarged glands due to pertussis later become tuberculous.
not used. R. R. STRUTHERS

SURGERY

Injury to the Larynx Induced by X-Ray Treatment. Strandberg, O. *Jour. Laryng. and Otology*, Edin., August, 1924.

The author emphasizes the fact that x-ray burns of the larynx may simulate both tuberculosis and cancer. He reports a case. A man, aged forty-one, had x-ray treatment for lymphoma of the neck in the spring of 1922, and a second treatment a few months later. In eight months he again came under observation complaining of dyspnoea and pain in the throat. The condition resembled tuberculosis and the patient was admitted for Finsen light treatment. Later the skin of the neck was found considerably atrophied, the vessels greatly dilated. In the centre of this area was a large ulcer with a fistula which contained a sequestrum of the thyroid cartilage. There was no tuberculosis of the lungs. The patient recovered after removal of the sequestrum and healing of the ulcer by Finsen light treatment. His voice, however, remained hoarse and the mucous membrane of the larynx swollen.

In reviewing the literature the author notes that the character of lesions of the larynx due to x-ray burns fall into three groups. (1) Early reactions which appear one to three days

after x-ray treatment and continue for one to three days. (2) The true x-ray reaction appears in ten to twenty days after treatment, very often as laryngitis sicca with hoarseness and may cause extensive laryngeal trouble. (3) The late reaction usually serious and involving the deeper structure may occur as late as a year or even longer after x-ray treatment.

G. E. HODGE

Gastro-Intestinal Symptoms and Epigastric Hernia. Watson, L. F. *N. Y. Med. Jour. and Record*, April, 1924.

Hernia in the linea alba has often been confused with gastric and duodenal ulcer, and sometimes the two conditions exist at the same time. The presence of a tumour or slit-like opening in the linea alba, with or without the protrusion of a small mass on coughing, will help to establish a diagnosis of hernia.

In ulcer the symptoms come on at a certain interval after eating, while in hernia the paroxysmal attacks have no relation to meals but usually follow physical exertion, and the patient finds the greatest amount of relief by assuming a doubled up position, which relaxes the linea alba. When the omentum slips back into the abdominal cavity the pain disappears. Epigastric hernia must also be distinguished from cholelithiasis, cholecystitis, gastralgia, gastritis, carcinoma, sarcoma, appendicitis, nephrolithiasis, abscess or tumour of the abdominal wall, and the gastric crises of tabes.

Hyperplasia of the Endometrium. A Clinical and Pathological Study. Novak, E. and Martzloff, K. H. *Am. Jour. Obst. and Gynaec.*, Oct., 1924.

Excessive menstruation or menorrhagia lasting from one to five weeks may occur at any stage in the menstrual life but is more common at either extreme, particularly between the ages of forty-five and forty-nine, as noted in a series by the author. Bleeding occasionally occurs after menopause frequently simulating carcinoma, being differentiated only histologically. The endometrium microscopically may be smooth or of polypoid appearance. The quantity of endometrial tissue on curettage is variable, usually not excessive. Glandular changes are the most important from a diagnostic point of view. Small glands, post-menstrual in type, are found side by side with large dilated glands resembling retention cysts (Swiss cheese pattern). The author suggests that in cases of hyperplasia the endometrium is composed of an overgrowth of the basal layer and that the two superficial or functional layers are absent. The stroma in such cases is excessive, with mitotic changes.

Hyperplasia of the endometrium is attributed to ovarian functional changes but the writer does not agree that corpora lutea are necessarily absent. The disappearance of such condition after deep x-ray or radium treat ment, or removal of ovaries is given in support of an endocrine origin.

Curettage is advised for laboratory examination and at the same time it gives relief, either temporary or permanent. If symptoms recur curettage may be repeated and in the young is preferable to the more drastic measures, e.g., x-ray, radium or hysterectomy. Organotherapy while yet in the empiric stage offers relief. The author emphasizes the folly of any watery extracts of ovarian glands for hypodermic use, for in the process of preparation the substance is rendered inert. In patients at or near menopause x-ray or radium in sufficient dosage will permanently destroy the menstrual function thus curing the condition. Hysterectomy is indicated where x-ray in its proper form is not available or where some existing pelvic condition makes surgical procedure advisable.

A. D. C.

Surgical Treatment of Angina Pectoris. Brown, P. K., and Coffey, W. B. *Arch. of Int. Med.*, October 15th, 1924.

The authors undertook to relieve angina by following the suggestion of Franck as carried out first by Jonnesco. The latter's first operation relieved substernal anginal pain by a removal of the left cervical sympathetic system and the upper thoracic ganglion. Brown and Coffey attempted to simplify matters by beginning at one end of the tract and severing as few connections as possible, continuing to interrupt paths between heart and brain and cord until they found just what brought relief.

They furnish a detailed report of eight additional cases and a review of the literature. Their first four patients were operated on by severing merely the main left sympathetic

trunk below the superior ganglion and the superior cardiac branch. In the other four patients the superior ganglion was removed. In the eighth patient, the pains were substernal but the radiations dextral, and a removal of the right superior ganglion was necessary before complete relief from attacks were obtained.

Of the eight cases reported, one died a cardiac death within a few hours of operation and another of heart failure two weeks after operation. Both patients had low blood pressure, large flabby hearts and negative "T" waves in Lead 1. The other operations were considered brilliant successes. One patient had rather severe pains in the angle of the left jaw and in the left shoulder following operation.

They remind us that complete relief of the main and severest pain came from the operation of cutting only the main sympathetic trunk and the superior cardiac nerve on the left side. They consider that the substernal pain is a spasm of the first part of the aorta, where the superior cardiac branch is largely distributed, and that it is the vasoconstrictor influence of this nerve, not only to the aorta but coronaries which it also supplies, that is responsible for the main symptoms of angina.

Mention is made of the work of Wenckebach, and Eppinger and Höfer, of Vienna. These workers reported five cases in which the depressor nerve was resected on the left side. The existence of a separate depressor nerve in man is denied by American physiologists and anatomists is as far as the authors could judge from a review of the literature. Dr. S. W. Ranson (Northwestern University) is of the opinion that the good results in Wenckebach's patients were due to the fact that Höfer, who operated on them, cut the superior cardiac branch thinking it was the depressor.

In a survey of the literature the operative procedures to date are divided into six groups.

1.—Resection of the middle and lower cervical and upper thoracic sympathetic ganglion on the left side. Three operations, two by Jonnesco in syphilitic men, and one by Triffier in an arteriosclerotic man. In all, the anginal attacks were relieved.

2.—Resection of all three ganglions of the left cervical sympathetic and the upper thoracic ganglion. Brüning, Kummell, and Kappis each operated on women aged about sixty years. The cases were rendered free from attacks.

3.—Resection of the main trunk and superior cardiac branch of the superior cervical ganglion. Five cases done in this manner have been previously reported by the authors. One patient died six hours after operation.

4.—Severing of the "depressor vagi," Eppinger in Wenckebach's clinic reports five patients operated on by Höfer, two on the left side alone, and three on both sides. One died and the others were relieved.

5.—Severing of the "depressor vagi," and extirpation of the lower half of the left superior ganglion to the lower half of the middle ganglion.

6.—The authors now add nine cases in which the operation consisted in removal of the superior ganglion. Of these one patient died as a result of the operation and one two weeks later. The others have all been relieved, with the exception of one patient who still suffers from referred pain and pain due to trauma at operation. L. C. MONTGOMERY

DERMATOLOGY

The Management of Impetigo Contagiosa in Maternity Hospitals. Blaisdell, J. H. *Jour. A. M. A.*, Sept. 13, 1924.

The conditions in a maternity nursery are ideal for the spread by contact of impetigo. Babies are bathed and changed at one centre. The nurse is in contact with the babies in turn. Diapers, pins, etc. are taken from a common table. The rectal thermometer is only partly immersed in solution.

A careful technique must be developed if the disease is to be eradicated. It is essential to make it a surgical operation every time the baby is touched. The physician is advised to keep his hands in his pockets whilst making his visits. The infantile type of the disease is bullous. The crusts of the ordinary variety are infrequent. A large proportion of the body may be affected in three days, with high temperature and prostration, as seen in a burn. Death is usual where more than one-third of the body is affected. A streptococcus is the cause of the ordinary crusted type. The

Staphylococcus pyogenes aureus is found in the unbroken bleb of the infantile variety.

Many regard skin disease in the new-born as luetic. From a reported epidemic of impetigo two children were buried as having "congenital syphilis." The exact source of infection is often a mystery. One epidemic followed the return from a holiday of a nurse with an impetiginous lesion of the chin. Visiting children started the disease in another epidemic. Early recognition is essential. More important than medication is the gentle but thorough removal of the exudate with soap from a collapsible tube, water and sterile gauze three times a day until there is a red, oozing surface. This should be followed by the ointment of ammoniated mercury or an ointment of sulphur and boric acid, of each 6%.

Where babies are concerned, impetigo contagiosa of the bullous type is contagious in the highest degree and should be recognized as one of the very few contagious diseases to which infants are liable. C. R. BOURNE

ANAESTHESIA

Intracardiac Injection of Adrenalin in a Case of Shock from Artificial Pneumothorax (Iniezione intracardiaca di adrenalina in un caso di shock da pneumotoraee artificiale). Cervini, Alfonso. *Il Policlinico*, June 30, 1924, p. 841.

The patient had tuberculosis affecting the apex of the left lung. Before the puncture was made the tissues, including the pleura, were infiltrated with stovaine.

The aspirating needle, connected with the manometer of Forlanini's apparatus, was inserted until the point was believed to be in the pleural cavity. Gentle movements from side to side were made ,and then slight negative pressure applied. The patient complained suddenly of feeling ill. The needle was withdrawn. Respiration and pulse stopped, the heart sounds could not be heard, the pupils dilated, urine and faeces were passed and the patient appeared to be dead. As soon as respiration failed artificial respiration was begun, oxygen was administered and ether, camphor, and caffeine were injected subcutaneously, but with no result. One cubic centimetre of adrenalin (1-1000) was injected directly into the heart. After a few seconds the heart sounds could be heard again. Artificial respiration and the administration of oxygen were continued and soon respiration was resumed. Finally the patient completely recovered. The heart had stopped for three minutes.

The effect of the injection of adrenalin is partly mechanical and partly specific. The specific action is shown by the fact that massage of the heart and the injection of other substances such as strophanthus, digitalis and camphor oil are not as effectual. The efficacy of adrenalin is multiplied one hundredfold by injection directly into the heart muscle. It has a specific action on the sympathetic nerve fibres and endings. W. B. HOWELL

Resuscitation by Direct Massage of the Heart in Cardiac Arrest. Lee, Walter Estele, and Downs, T. McKean, *Annals of Surgery*, October, 1924.

The principal effect of cardiac massage is to excite contraction, not, as Lery suggests, to maintain the circulation and so keep the vital centres viable. The writers explain the three methods of obtained access to the heart. The objection to turning back an osteoplastic flap is the length of time consumed. When the abdominal route is followed it must be remembered that the important part of the heart is the base. This part cannot be reached except by cutting through the diaphragm. The suturing of the diaphragm afterwards is difficult but must not be neglected. During massage artificial respiration must be kept up.

A case in the writers' practice is given. The patient was thirty-one years old and was to undergo an operation for gastric or duodenal ulcer. Ether was given. He struggled violently at first. When traction was made on the pylorus the breathing stopped. Artificial respiration was instituted. After ten minutes there was still no attempt at natural breathing and the pulse had disappeared. A hand was inserted into the abdomen and the heart was found to have stopped. It was made to contract again by rhythmical compression. Some minutes afterwards the patient began to breathe. The operation, gastro-enterostomy, was proceeded with and the patient made a complete recovery. W. B. HOWELL

Report on Two Cases of Direct Injection into the Heart for Arrest of Heart Beat during Anaesthesia. Howell, W. B. *The Lancet*, Oct. 11, 1924.

Dr. Howell considers that direct injection into the heart is to be recommended in preference to massage for reanimation when the heart has stopped during anaesthesia, and reports his experience in two cases in which it was used. In the first, towards the end of an operation for bowel anastomosis, breathing stopped and the pulse could not be felt. Three minutes afterwards the surgeon began massage of the heart through the abdominal opening; the organ was felt as a flaccid bag, apparently paralysed in diastole. The massage was performed for about two minutes, with no result, and it was decided to inject adrenalin into the heart. After one or two attempts in which the solution (1 cc. of 1-1000 adrenalin) did not actually enter the heart, a final injection of seven minims of pure adrenalin were injected directly into the heart muscle, and in about ten seconds the heart began to beat, gradually gaining strength and speed. It was calculated that it had stopped for the space of nine or ten minutes. Artificial respiration was continued after the heart had started for several minutes before a spontaneous breath was taken. Marked oedema of the lungs developed, as well also as pneumothorax, and about five and a half hours later death ensued. The patient never regained consciousness in spite of the administration of oxygen and cardiac stimulants. At the post-mortem examination it was found impossible to determine the cause of the pneumothorax, but there was no sign of injury due to the injection needle.

In the second case, a man aged seventy-one, with severe peritonitis, while the heart was not palpated directly, there was cessation of apex beat, pulse and respiration and the appearance of the patient's face to prove the stoppage. Adrenalin (½ cc. of 1:1000) was immediately injected into the heart through the fifth intercostal space, and there was almost at once a return of the pulse, an improvement in colour, and a little later on, the beginning of spontaneous breathing. Probably the time during which the pulse had disappeared was not more than two minutes. More adrenalin was necessary, given hypodermically, to support the heart action later on in the day. He regained consciousness about six hours later and made a good convalescence. In his case also, there were signs of oedema of the lungs.

The chief lesson to be derived from these cases is the necessity for the immediate injection of adrenalin into the heart muscle. In no case does the actual injection seem to injure the muscle, whereas cardiac massage has been known to cause such damage. A needle of the spinal puncture type should be inserted into the fourth intercostal space at the upper edge of the fifth rib close to the sternal border, or else one finger's breadth inside the left border of relative heart dulness. It may be of advantage to let some of the blood escape from the distended heart. H. E. M.

It is possible, there is no doubt, to develop acquaintance with a disease, say with measles, gradually and imperceptibly by gradually increasing exposures so that a high resistance may be built up without the shock or disadvantage of actual illness. I have no doubt that such resistance is built up very often in children who are protected from gross infections, yet cannot avoid all infections. A generation hence quite likely we will be inoculating and vaccinating against many diseases—measles, whooping cough, influenza, scarlet fever, diphtheria, building up a defence against them as the genius of Jenner taught us nearly a century and a half ago to defend ourselves against smallpox, which now in Jenner's England does not kill one in a million, where then it killed one in ten. We may intentionally and scientifically be able to acquire resistance to these diseases, as we now often do by lucky chance, without actual illness. — D. A. Stewart, Ninette.

Obituary

Dr. Walter Bell Telfer, of Milton, died in the General Hospital at Guelph on October the 24th in his 52nd year.

Dr. W. T. Parke died in Woodstock on October the 23rd in his 74th year. Dr. Parke had practiced in Woodstock for thirty years, coming to that city from Listowel and Milverton. He had been an active member of the Ontario Medical Association and was widely known throughout the district.

Dr. J. P. Pelletier, Agent General for the Province of Quebec in the United Kingdom, died suddenly in Quebec where he had just arrived to spend a holiday. Jean Merie Joseph Pelletier, M.D., was born at Riviere Ouelle, July 27, 1860, and was educated at the College of Ste. Anne de la Pocatiere and Laval University, Quebec, graduating from the latter institution in 1887. Dr. Pelletier established a large practice in East Sherbrooke and was active in military circles, being Lieutenant in No. 7 Company of the Ninth Battalion of Quebec. He took part in the northwest campaign in 1885.

Dr. George de B. Watson, of Edmonds, B.C., passed away suddenly on the morning of October 24th, at the age or seventy-two. The British Columbia Medical Association regrets the death of one of its valued members. Dr. Watson, who had been medical health officer for the Burnaby district for many years, was greatly respected, not only by the community in which he lived and worked, but also by his many professional friends who will not soon forget his keen interest and sincere co-operation in the many activities of this Association.

Dr. Watson was born in Macao, China, in 1852. He was educated and took his medical degrees in Edinburgh, Scotland ,and later practised as a physician in London. He came to British Columbia in 1910. He leaves a wife, three daughters, and two sons. The funeral was held on Monday, Oct. 27th, at St. Alban's Church, Edmonds, and the interment took place at Ocean View Burial Park, where the service was strictly private, by request of the family.

At a meeting of the Burnaby Municipal Council, held on the 26th of October, the Clerk officially notified the Council of the death of Dr. Watson, and at the request of Reeve McLean, all present stood with bowed heads as a mark of their esteem for the late medical health officer. The Clerk was instructed to write a letter of sympathy to Mrs. Watson and the family. The Police Commissioners also passed a resolution of sympathy and expressed regret at the death of Dr. Watson who was also police surgeon.

Entropion and Ectropion of Lower Lid.—J. E. Jennings, St. Louis, describes his operation for entropion. One should first estimate how much the lid must be drawn down to eliminate the entropion and make the length of the incision just twice that amount. If the lid turns in one-fourth inch, then the incision should be one-half inch long. The incision is a vertical one, commencing just below the lid margin and extending downward one-half inch, dividing skin and superficial fascia. Without undermining the skin, a vertical suture is introduced through the skin above the upper extremity of the incision, carried down along the bottom of the wound and coming out through the skin just below the lower extremity of the incision. When this suture is tied, the margin of the lid is drawn down, and what before was a vertical wound now becomes a horizontal one, which is closed by two more vertical sutures, one placed on each side of the central one. If the length of the incision has been estimated correctly, the lid margin will have regained its normal position and perhaps show a trace of ectropion, which will disappear in a few days. The operation for ectropion is similar to that for entropion, except that the incision is horizontal and should be made a little longer to get a decided amount of overcorrection. The horizontal incision should be placed near the lid margin under the most pendent part of the lid. When the central suture is tied, the ends of the incision are drawn together, forcing up the margin of the lid and changing the horizontal wound into a vertical one, which is closed by two more sutures, one placed on each side of the central one. As there may be considerable tension on the sutures which might cause them to tear out, they should be supported by strips of adhesive plaster until healing takes place. I have used this operation for two years and have had uniformly good results. I do not recommend it in cases of more marked ectropion due to wounds and burns in which there is a considerable amount of scar tissue. I tried it in two cases, undermining the scar tissue; but despite the support of adhesive strips, the stitches tore out and the results were poor.—*Jour. Am. Med. Ass.*, Oct. 25, 1924.

Medical News from the British Empire

GREAT BRITAIN

Recent investigations have drawn attention to the prevalence of cancer of the scrotum amongst cotton spinners. This fact was brought out by two Manchester medical men, Mr. A. H Southam and Mr. S. R. Wilson, who found that of cases of scrotal cancer admitted to the Manchester Royal Infirmary during a period of twenty years, fifty-three per cent were employed as mule-spinners. Attention was drawn also to the fact that in eighty-four per cent the growth was situated on the anterior aspect of the left side of the scrotum, to be explained by the fact that there was chronic irritation of the scrotum by contact against the faller bar of the machine, and also that the spinner's clothes became saturated with oil thrown off from the machine

The Lancashire spinning trade was considerably interested by these statements, and further inquiries served to show that scrotal cancer was even more common amongst mule-spinners than had been at first suggested, so much so that the term "spinner's cancer" was in use. It is interesting to observe that until this paper was published no cases had been notified under the terms of the Factory and Workshop Act; it had not been realized that the disease might be due to the spinner's occupation. A large number of cases have, however, since been reported to the Home Office which has collected up to the present 145 cases of epithelioma of the skin in mule-spinners.

The latest development in the matter has been of a legal nature, a test case having been tried on the application of a cotton-spinner who sought compensation for having contracted epithelioma of the scrotum while following his occupation. The case was largely fought out on medical evidence and judgment was given in favour of the applicant. The judge said that there seemed to be no doubt whatever that there was a connection between the employment and the disease. An appeal against the judgment was in contemplation, but it was eventually abandoned in view of the work done by Mr. Southam and Mr. Wilson; it would have been necessary if the appeal were made, to produce evidence against the view that the occupation gave rise to the disease, and such evidence was not forthcoming. As there are about one hundred cases on the books of the Operative Spinners' Amalgamation, the question of compensation will have to be settled; this will probably amount to a considerable sum. It is likely that epithelioma of the scrotum will be scheduled under the Workmen's Compensation Act so as to apply to spinners. The attention of Lancashire members has been drawn to the condition and a further report is to be presented to them later.

Sir George Newman in his annual report on the Public Health of Great Britain for 1923, reviews the working of the Insurance Medical Service. He states that he regards the inception of this service in 1913 as an extremely important event in the history of British public health. The service follows the lines of private practice; State control and State interference are reduced to the minimum. The reproach that the service provides nothing beyond the services of general practitioners is recognized and it is admitted that it would be an improvement if the service also included a comprehensive scheme of consultant services. Such a scheme was devised in 1914 and the necessary funds voted by Parliament, but it was checked by the war. On the other hand the value of the general practitioner's work must not be overlooked. "He forms the first line of attack in the fight against disease. His skill must be the sieve that distinguishes the important from the unimportant"; and it is essential that he should be in close touch with workers in other fields, and with many agencies, both voluntary and State-aided, for the prevention of disease The reciprocal relations of the several agencies one to the other require to be clearly defined and brought into operation. The scheme presents difficulties, but it is agreed that it is long overdue to the country, and the benefit from a comprehensive coordinated system would be very great. The various health agencies expend large amounts of money yearly and demand much labour, but their efforts probably do not give the best results owing to the lack of coordination.

The incapacity certificates of panel physicians afford a great mass of statistical material, and this has already proved of value in a report by the ministry on the incidence of rheumatic disease. Emphasis also is laid on the fact that the panel system tends to favour an early diagnosis, and thus allows not only for early treatment but also for prevention of disease and the formation of healthy personal habits.

The number of panel physicians in 1923 in England was 12,000, and the average number of insured persons on a doctor's list was 992. A small percentage of doctors have larger numbers on their lists, some showing as many as 3,000, but in these cases assistants are employed. The maximum number allowed to one doctor is 2,500; under the old regulations it was 3,000.

In contrast with this report, bitter criticism of the panel system has been made by a group of physicians, organized as the National Medical Union. They aver that the system produces demoralizing effects on the patients, as they never pay for their medical attendance, and, moreover, it is apt to develop carelessness and negligence amongst the physicians. They also state that non-panel physicians can earn large incomes out of insured persons who are dissatisfied with the panel treatment, gratuitous though it may be. This medical union is still quite small in numbers, and it is questioned whether such a small percentage of the profession should be regarded as a reliable guide to the general opinion.

The General Medical Council have made certain resolutions and recommendations regarding medical education, which have applied since 1923. The minimum age for registration as a medical student has been increased from sixteen to seventeen years, and in practice, the length of the curriculum has been extended by transferring to preliminary study and examination the subjects of elementary physics and chemistry considered in their purely scientific aspects. Instruction in these as applied to the professional courses, such as biochemistry and biophysics, will be continued throughout the curriculum, and examinations will be held in these subjects so that the student will no longer be able to put behind him as passed and done with the knowledge gained in his preliminary work.

The Council has particularly recommended that time should be reserved for the later subjects of study, free from the worry of passing examinations in the earlier parts. It is suggested that a minimum of three years be made available not only after the courses in

anatomy and physics but after the taking of the professional examinations.

Another attempt at reform is in regard to the methods of assessing marks in the various examinations. It is proposed that account be taken of "duly attested records of the work done by the candidate throughout his course of study" in the subject. By this means it is hoped to meet the long standing difficulty that a man's mental agility, or lack of it, may count too heavily in his passing or not. But it is recognized that the application of this remedy will not be easy, and will require the strictest impartiality on the part of all those concerned in recording.

Some further resolutions are as follows: "That throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine: That each Licensing Body should make adequate arrangements for the effective correlation of the several subjects of study throughout its curriculum."

The proportion of practitioners to the population of the British Isles as shown by the numbers on the Medical Register, is shown in the following table.

Year	*Registered Practitioners*	*Population*
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	36,912	41,976,827
1911	40,913	45,370,530
1921	45,408	47,261,530

These figures show a general tendency towards an increase in the ratio of doctors to population. During the year 1923 the new medical registrations were 2,482, the largest entry on record, and there is now for the first time approximately one name in the Register to every thousand of population.

On Sept. 14th last, Mr. W. H. A. Jacobson, F.R.C.S., died, aged seventy-seven. His life was that of a great teacher and surgeon, and his record showed a promise from the first which was completely fulfilled. His surgical work and teaching was largely done at Guy's Hospital, and came before all his other interests. That his lectures in anatomy were crowded with students was evidence of his powers of teaching attractively that subject whose difficulty of presentation almost inevitably evokes an association of dry wearisomeness. And with this gift for demonstration he combined the qualities that make teachers beloved of their students.

He was for many years a martyr to insomnia, but turned his sleepless hours to good account in writing: his "Operations of Surgery" for example, had gone through six editions by 1915, and he also revised several editions of Hilton's "Rest and Pain," and made several additional contributions of his own to surgical literature.

It was said of him that his manner, while in reality that of a very modest and unassuming character, gave the impression of pompousness, and on one occasion this led to his being mistaken by a stranger for a certain famous knight. "Are you Sir so-and-so," he was asked. "No, sir," was his reply, "just common clay."

JAMAICA

An international conference on health problems was held in Kingston from July 22nd to 31st. Prominent men in the medical profession took part in the proceedings, and the programme was full of interest. The acting Governor of the Island took the oportunity in opening the conference of expressing the gratitude due from Jamaica to the Rockefeller Foundation for the admirable work carried on in fighting hookworm disease. Dr. Vincent, President of the Foundation,. replied that the meeting of the conference under the British flag was specially appropriate since the British had achieved such great things in the promotion of public health.

Dr. MacPhail (Guatemala) read a paper on the administration of quinine in malaria. He preferred either the intramuscular or the oral method, the danger of tissue necrosis in the former he thought was insignificant, at least in comparison with its greater value in saving life. There were differences of opinion on the point, however, some holding that this method should be followed only in extreme cases.

An account of the hookworm campaign in Jamaica was given by Dr. Washburn, of the Rockefeller Foundation. There had been effective co-operation on the part of the people in allowing themselves to be examined. Sanitary latrines were being installed by the majority of the parochial boards and whole-time medical officers of health were being appointed. The general health of the people had greatly improved. Similar efforts had been made in Porto Rica, with the result that in ten years the death rate from hookworm disease had been reduced from 333 per 1,000 to 42 per 1,000.

As regards tuberculosis in the tropics it was pointed out that the natives showed an inferior degree of resisting power to that exhibited in countries where the disease had existed for longer periods. It was stated that the coloured man was best treated locally for this disease, but the white man should be sent to a more bracing climate. Silver City, New Mexico, was mentioned as being one of the best resorts.

News Items

GENERAL

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about three hundred dollars, will be made on July 14, 1925, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. The essay should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. They must be typewritten, and in English acceptable for publication without necessity for editing by the

Committee. Any illustrations should be appropriate and correctly annotated with the text. Essays must be received by the Secretary of the College on or before May 1, 1925. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1924 has been awarded to Dr. Gordon Cameron, Victoria, Australia, for his essay entitled: "Pancreatic Anomalies; their Morphology, Pathology and Clinical History."

JOHN H. GIRVIN, *Secretary*,
19 South 22nd Street, Philadelphia, Pa. U. S. A.

THE SEAL OF THE CANADIAN SOCIETY FOR THE STUDY OF THE DISEASES OF CHILDREN

At the last annual meeting of the Canadian Society for the Study of Diseases of Children, Dr. George A. Campbell, presented the Society with the Seal of which the above is an engraving, and gave the history of it as follows:—

At one of the first meetings of the Council of the Society held in Montreal in 1922, it was decided that Dr. Campbell ask the assistance of Dr. Doughty in obtaining a suitable seal, as Dr. Doughty was a member of the Committee who had recently designed a new coat of arms for the Dominion. At the request of Dr. Campbell, Dr. Doughty while in England sought the aid of the Princess Patricia, and she very kindly became interested and gave instructions to Mr. Gribble, an eminent English artist, who has interpreted her ideas in the beautiful design which is now presented to the Society.

In the centre of this design is seen the Christ-like figure representing the Great Physician; in the background is the Tree of Knowledge or Tree of Life; to the right a monastic figure stands such as one finds depicted in old medical pictures. The surgical assistant holds a tray containing extracts and healing potions, presumably prepared from the Tree of Life. Below to the right is seen a child who has received the healing gifts and is cured. In one hand he holds an apple, the symbol of health, and the other hand is outstretched for more of the healing potion. The other figures of children show disabilities of various kinds. The one in the centre evidently is suffering from a fracture of the left forearm; the one to the extreme right is deformed, while the child in the mother's arms is apparently suffering from malnutrition.

The mothers of the three children are depicted around the central figure. The picture might well be named "Suffer little children to come unto me."

RESULTS OF EXAMINATIONS COLLEGE OF PHYSICIANS AND SURGEONS, ONTARIO

The figures relative to the examinations by the College of Physicians and Surgeons of Ontario have been kindly provided for the *Journal* by the registrar, Dr. H. W. Aikins. As can be seen, about three hundred men presented themselves in the fall and spring, and of these sixty failed to procure a license; the license to practice in Ontario is evidently chiefly sought by graduates of Ontario colleges.

From	*Fall, 1924*	*Spring, 1924*
University of Toronto	33	169
Queen's University	7	42
University of Western Ontario	2	23
McGill University	6	9
University of Montreal	1	1
Loyola University	1	–
University of Laval	1	–
Vienna University	1	–
Johns Hopkins University	–	1
TOTAL CANDIDATES	52	245
PASSED	35	201

REGISTRATIONS IN MEDICAL SCHOOLS OF ONTARIO, SESSION 1924-25

The registrars of the three Ontario medical schools give the following numbers of those registering in the medical schools.

Faculty of Medicine, Western University, London, Ontario

Medicine proper	101
Premeds, first year	43
Premeds, second year	32
Total	176

Queen's University, Kingston

The medical faculty of Queen's University give the following details of registration in the faculty of medicine.

First year	45
Second year	58
Third year	52
Fourth year	47
Fifth year	52
Total	254

There will be no graduating students in the spring of 1925, since the last class of students on the old five-year course graduated in May, 1924, all of its students are at present on the six-year course.

Faculty of Medicine, University of Toronto

The faculty of medicine of the University of Toronto give the following figures.

REGISTRATION, 1924-1925

Year	*Women*	*Men*	*Total*
First	15	93	108
Second	13	103	116
Third	12	105	117
Fourth	8	119	127
Fifth	9	178	187
Sixth	10	117	127
Diploma of Public Health	–	7	7
Diploma in Radiology	–	2	2
Bachelor of Science (Med.)	1	2	3
Post Graduate	–	3	3
Total	68	729	797

THE ASSOCIATION OF MILITIA MEDICAL OFFICERS

At a meeting held in Ottawa in April last, the Association of Officers of the Medical Service of Canada, which had lain dormant since the commencement of the Great War, was re-organized. Steps are now being taken to perfect the organization and to arrange for the next meeting, which will be held in Ottawa, probably in April, 1925.

Recently communications have been issued to all militia districts encouraging enrolment of all medical officers in the Association. In order that the Association may function properly and be of benefit to medical officers throughout the country, it is desirous that as many members be secured as possible. The meetings of the Association before the war were exceptionally interesting and well attended, and were also most instructive to officers of the medical service.

Copy of the Institution of By-laws of the Association may be obtained on application to Col. A. E. Snell, C.M.G., D.S.O., Deputy Director-General of Medical Services, Ottawa, or to the Secretary, Capt. L. M. Dawson, C.A.M.C., Ottawa. The annual fees are nominal, $1.00 per year, and should be forwarded to Capt. A. M. McCormick, 163 Laurier Avenue, W. Ottawa.

The centennial celebration of the establishment of the Medical College of the State of South Carolina was held in Charleston on November 12 and 13th, and was attended by a large number of graduates and by representatives of many sister colleges of the neighbouring States and also of Canada. The celebration included not only inspection of the college building and clinics at the several hospitals and an unveiling of a memorial tablet, but on the first evening, tableaux representing the story of medicine were shown in the Academy of Medicine, while the second evening was occupied by a banquet.

NOVA SCOTIA

A campaign for funds for the work of the Victorian Order of Nurses in Halifax and Dartmouth has resulted very satisfactorily, and the regard and esteem in which the Order is held were manifested in a practical way. Many physicians took a prominent part in the publicity work.

The out-patient clinics of the Public Health Clinic of Dalhousie University were opened for the treatment of patients on the 3rd of November. The Halifax Visiting Dispensary and the Welfare Bureau have taken quarters in the new building, and it is expected that the Victorian Order of Nurses and the Health Commision will also establish offices there. This association of several organizations intimately interested in the public health will permit of the correlation of their work without in any way interfering with the autonomy of any organization. The clinic will serve the needs of the Victoria General, Children's, Grace Maternity and Civic Tuberculosis Hospitals, as far as out-patient service is concerned, those several institutions being immediately adjacent to the health centre. The out-patient clinics are under the general direction of the several clinical chiefs of the Faculty of Medicine. Appointments thus far made to the out-patient service are: In general medicine, Doctors Corston, H. G. Grant and Churchill; in general surgery, Doctors Weatherbe, Burris, Miller and D. J. MacDonald; in gynaecology, Doctor Atlee; in prenatal work, Dr. Maclellan; in ear, nose and throat, Dr. Doull; in the eye, Dr. Cunningham; in orthopaedics Doctors Lyons and Acker; in the skin, Dr. Mack; in tuberculosis, Dr. Sieniewicz; and in dentistry, Dr. Bagnall. W. H. H.

The Osler Medical History Club of Halifax held the first meeting of the session at the residence of Dr. John Stewart, on the 25th of October. Dean Stewart gave an intensely interesting account of students' days and ways in the seventies of the last century, and spoke in glowing terms of the worthies, including his old master, Lister, who constituted the teaching faculty at that time. His lecture was illustrated with many photographs and other relics of his student days.

The second meeting of the Halifax branch of the Medical Society of Nova Scotia was held at the Victoria General Hospital on the evening of October 29th. Cases were shown by Doctors MacDougall, Murphy, Alan Curry and others, illustrating particularly the results of operative treatment of spinal tumour and ununited fractures. The meeting proved to be most interesting and instructive.

QUEBEC

Dr. A. E. Lundon has returned to the city, having completed a period of post-graduate work in Vienna and Buda Pesth. G. H.

In an official report presented to the cabinet it is stated that the Province of Quebec has now in operation eight dispensaries for tuberculosis. The last one to be opened is the one in Joliette. Planned and being prepared for opening are two more dispensaries in Montreal, one in the west end under the direction of the Royal Edward Institute, and another in the east end under the direction of the Institut Bruchesi. The dispensaries now in operation are located in Chicoutimi, Riviere du Loup, Thetford Mines, Sherbrooke, Arthabasca, Three Rivers, Valleyfield, and Joliette.

The Laval Tuberculosis Hospital in Quebec has been increased by the addition of 130 beds, and is hereafter to be known as the Laval Taschereau Hospital. Dr. J. E. Laberge, of Montreal, has been ap-

pointed by Laval University as physician under Dr. O. Leclerc with Dr. Alphonse Lesperance as assistant.

Arrangements have now been made by the Federal Department of Health at Ottawa for the transfer of the adminstration of the Parc Savard Hospital to the Department of Hygiene in the Province of Quebec. The tuberculosis hospital at St. Foye and Lake Edward cannot at present handle all the cases offering. This hospital situated at Little River underwent considerable alterations last year, and will now house between 500 and 600 patients. It is fitted with all modern conveniences, and will be put at the disposal of Dr. Lessard at the close of the navigation season. Hitherto it has been used only as a hospital for immigrants.

According to the annual report of Dr. Boucher, Director of Public Health, City of Montreal, deaths from tuberculosis and infant mortality have both decreased in the past twelve months.

By the statistics given in his report it would appear that cancer is on the increase, although the percentage considering the increase in the population does not show a greater ratio to the population. In 1923 births totalled 20,527; deaths 10,074. Computed on a percentage basis, these figures show that there were 31.94 births and 15.67 deaths per thousand of population. The infant mortality under one year was 148.9 per thousand births, a slight decrease for 1922.

Dr. A. H. Desloges, Director of the Provincial Insane Asylums, has just returned from Switzerland where he was Canada's medical representative at the recent International Medical Congress at Berne. While in Europe he also attended the Congress of Mental Hygiene in Belgium, and was much impressed by the amount of attention given to the subject of feeblemindedness in children, especially to a discussion of its causes and treatment. Intelligence tests were more and more frequently employed, especially in determining the amount of abnormal mentality and the detection of criminal tendencies.

The first clinical evening of the season was held November the 14th, in the Children's Memorial Hospital on Cedar Avenue, Montreal. Among the papers and cases presented were the following:—"Tuberculids an infant." Dr. A. Goldbloom; "Occurrence of Summer Diarrhoea in Montreal," by Dr. H. B. Cushing; "Typhoid Fever with Perforation," Dr. Kenneth Cameron; "Chorea with Rheumatic Nodules," Dr. H. B. Cushing; "A Case of Scleroderma," by Dr. Yorston and Dr. Burgess; also "Haemophilia," by Dr. H. B. Wright, and "Progressive Muscular Atrophy," by Dr. Lindsay.

Dr. Morse, ex-Dean of the Faculty of Medicine of Union University, Cheng Tu, West China, gave an address before the students of McGill University on "Native Medical Practice in the Heart of China," where anatomy and surgery are unknown, and disease is attributed to evil spirits. Dr. Morse has been awarded a Rockefeller travelling fellowship, and was on his way to Johns Hopkins Hospital to do some research work. Union University with which Dr. Morse is connected is supposed by several missionary societies, English, American and Canadian. It has six faculties, Medicine, Science, Arts, Theology, Education and Dentistry.

ONTARIO

The annual meeting of District Number Two of the Ontario Medical Association, comprising the counties of Huron, Perth, Waterloo, Wellington, Oxford, Brant and Norfolk was held on September 24th, in the club house of the Riverside Golf and Country Club, Galt. Every society was represented and more than eighty members of the Association were present. The meeting was opened by an address by Dr. L. J. Austin, of Queen's University, Kingston, on "Emergencies in a Surgical Practice," in which he dealt particularly with fractures. Dr. George S. Young, of Toronto, as President of our Association, spoke on the activities of the Association convincing all present of the many advantages obtained by becoming a member of the organization. Dr. D. Sclater Lewis, of McGill University, Montreal, read an excellent paper on "Cardiac Therapy." Dr. T. C. Routley gave the members present an address on what the pioneer work of the Ontario Medical Association has done to assist in organization work in other parts of Canada. Dr. Austin closed the meeting with an address on "The Surgery of the Sixteenth Century, with lantern slides. Dr. Ward Woolner, of Ayr was re-elected Vice-Counsellor while the following names were submitted for consideration for the position of Counsellor for the year 1925-26:—Dr. S. E. Charlton, Galt; Dr. J. R. Stanley, St. Mary's; Dr. Ward Woolner, Ayr; Dr. H. H. Huenergard, Kitchener. The members of the South Waterloo Medical Society entertained all the visitors to dinner, closing one of the best district meetings ever held in this district.

At a recent meeting in New York, Dr. Fulton Risdon had the honour to be elected President of the American Association of Oral and Plastic Surgeons, an association formed so recently as 1920. Dr. Risdon has done some very excellent work in plastic surgery both during and since the war and is consultant in Oral and Facial Reconstruction to the Department of Soldiers' Civil Re-Establishment of Canada.

The Huron County Medical Society met at Seaforth on Oct. 1st. An address was given by Dr. F. A. Clarkson, of Toronto, on "Pericarditis."

Dr. Geo. S. Young, of Toronto, addressed the Renfrew County Medical Society at Cobden on October 2nd; his subject was "Psychotherapy from the standpoint of the general practitioner."

At a meeting of the Victoria County Medical Society held in Lindsay on October 3rd, Dr. W. G. Cosbie, of Toronto, gave an address on "Obstetrical injuries and their after results, with special reference to their prevention."

On October 8th, Dr. J. H. Elliott, of Toronto, addressed the Sudbury Medical Society at Sudbury on "Tuberculosis in childhood."

The Lambton County Medical Society met at Watford on October 8th. Dr. Harvey Clare, of Toronto, gave an address on "The range of the general practitioner in psychiatric diagnosis."

Dr. W. W. Lailey, of Toronto, addressed the Hastings County Medical Society at Sterling on October 8th, taking for his subject, "Modern views on the toxaemias of pregnancy."

At a meeting of the Bruce County Medical Society held at Tara on October 10th, A. J. McKenzie gave an address on "Pernicious and grave anaemias," and Dr. H. G. Murray, of Owen Sound, spoke on "Abdominal injuries."

At a business meeting of the Simcoe County Medical Association held recently, the following officers were elected for the coming year:—President, Dr. Frank Porter, Waubaushene; Ist Vice-President, Dr. A. McFaul, Collingwood; 2nd Vice-President, Dr. B. A. Blackwell, Penetanguishene; 3rd Vice-President, Dr. A. T. Little, Barrie; Secretary, Dr. W. A. Lewis, Barrie.

On October 11th, Dr. R. I. Harris, of Toronto, conducted a clinic for crippled children, at Sault Ste. Marie, Ontario, under the auspices of the Rotary Club of that place; in the evening Dr. Harris addressed the local medical society on "Tuberculosis of the bones and joints."

The Northumberland and Durham Medical Society met in Cobourg on October 15th when the following addresses were given:—Dr. L. J. Austin, of Kingston, "Some everyday surgical problems"; Dr. MacGregor, of Kingston, "Problems of infant feeding."

At a meeting of the Grey County Medical Society at Owen Sound on October 14th, the following addresses were given:—Dr. R. W. Mann, of Toronto, "The treatment of diabetes mellitus"; Dr. R. D. Rudolf, of Toronto, "Cardiac irregularities."

Dr. E. E. King, of Toronto, addressed the Niagara District Medical Association at Niagara Falls on October 15th; his subject was "The non-surgical treatment of enlarged prostate."

On October 15th, Dr. W. E. Gallie, of Toronto, addressed a combined meeting of the Oxford County Medical Society and the Rotary Club of Woodstock, at Woodstock, on the subject "Crippled children."

On October 15th, in connection with the regular meeting of the Perth County Medical Society, Dr. John Oille, of Toronto, conducted a clinic on cardiac cases; and Dr. J. K. McGregor, of Hamilton, dealt with goitre and stomach cases.

The Haldimand County Medical Society met at Dunnville on October 15th; the following addresses were given:—Dr. Jas. W. Ross, Toronto, "Surgery of the colon"; Dr. H. S. Hutchison, Toronto, "High blood pressure and arteriosclerosis."

A reorganization meeting of the Haldimand County Medical Society was held at Cayuga on October 1st. The following officers were elected:—President, Dr. B. N. Macaulay, Dunnville; Vice-President, Dr. G. V. Simpson, Cayuga; Secretary-Treasurer, Dr. A. J. Bromley, Cayuga. The first regular meeting of the Society will be held in Dunnville on October 15th.

The annual meeting of District Number Nine of the Ontario Medical Association, comprising the counties of Algoma, Temiskaming, Sudbury, Nipissing, Parry Sound and Muskoka, was held in North Bay on Wednesday, August 6th. The following addresses were given:—"The treatment of bronchitis," Dr. J. W. Crane, London; "The importance of the history and of the physical examination in acute abdominal diseases," Dr. Roscoe Graham, Toronto; "Some comments on recent medical legislation and the results thereof," Dr. R. H. Arthur, Sudbury; the President and the Secretary of the Ontario Association spoke on the work, which is being carried on by it. Luncheon was served at the Golf and Country Club. Owing to the inclement weather the attendance was not as large as had been expected.

The Sault Ste. Marie Medical Society met at the General Hospital, Sault Ste. Marie, on the afternoon of Wednesday, September 10th. The following addresses were given:—"Early diagnosis and treatment of neoplasms of the female breast," Dr. A. J. Grant, London; "Constipation in infants and young children," Dr. Geo. R. Pirie, Toronto; "Modern aids in labour," Dr. W. B. Hendry, Toronto; "Encephalitis lethargica,—clinical features," Dr. W. T. Connell, Kingston. At the close, the President, Dr. Geo. S. Young, and the Secretary, of the Ontario Medical Association, referred to some natters of importance to the Society. A very pleasant feature of this meeting was the banquet given at the Country Club to which the visiting ladies and doctors' wives were invited.

The annual meeting of District Number Ten of the Ontario Medical Association, comprising the districts of Kenora, Rainy River, Thunder Bay and Patricia, was held at Fort William and Port Arthur on September 12th. In the morning, a clinic was held at the McKellar Hospital, Fort William, followed by luncheon at the Kaministiquia Club, after which the meeting adjourned to the public library where interesting addresses were given by Dr. A. J. Grant, of London; Dr. Geo. R. Pirie, of Toronto, and Dr. W. B. Hendry, of Toronto. At four o'clock in the afternoon there was a very enjoyable drive to Chippewa Park, followed by dinner at the Prince Arthur Hotel, after which Dr. W. T. Connell, of Kingston, gave an address on "Encephalitis lethargica." This was followed by short addresses by the President, and by the Secretary of the Ontario Association. On Saturday morning, a clinic was held at St. Joseph's Hospital at Port Arthur, bringing to a close a very interesting and enthusiastic convention.

On September 8th, District Number Three of the Ontario Medical Association, comprising the Counties of Bruce, Dufferin and Grey, met in annual convention, in Owen Sound. During the afternoon addresses were given by Dr. A. J. Grant, of London; Dr. Geo. R. Pirie, of Toronto, Dr. W. B. Hendry, of Toronto, and Dr. W. T. Connell, of Kingston, and by the President and Secretary of the Association.

On September 18th, District Number Six of the Ontario Medical Association, comprising the counties of Victoria, Peterborough, Durham, Northumberland, Prince Edward, Hastings and Haliburton, held their annual meeting at Peterborough, with an attendance of between 80 and 100. At the morning session which was held at St. Joseph's Hospital, the following subjects were discussed:—"Asthma—diagnosis and treatment," by Dr. H. K. Detweiler, Toronto; "Some points in diagnosis and the value of rest in the treatment of pulmonary tuberculosis," by Dr. Jabez Elliott, Toronto; "The physiology and pathology of the gall bladder," by Dr. Wm. Magner, Toronto. Luncheon was served by the Sisters of St. Joseph's Hospital on the roof garden of the hospital. In the afternoon, the meeting adjourned to Nicholls Hospital where the following papers were read:—"A discussion of methods of diagnosis and therapeutic procedures in certain surgical lesions of the genito-urinary tract," (illustrated by lantern slides) by Dr. W. E. Lower, Cleveland; "The chronic arthritides," by Dr. C. L. Starr, Toronto; "Intussusception, with report of interesting case," by Dr. A. T. Bazin, Montreal. The annual dinner was held at the Empress Hotel, after which, in addition to short addresses by the President and Secretary of the Ontario Association, the following subjects were discussed:—"Radiographic diagnosis of abdominal tumours, external to the gastro-intestinal tract, but producing gastro-intestinal symptoms," Dr. H. M. Tovell, Toronto; "Radiographic diagnosis of pathological bone conditions in children," Dr. A. H. Rolph, Toronto. Short and much appreciated addresses wtre given by the Honourable Mr. Gordon, deputy speaker of the House of Commons, and Mayor Farmer, who welcomed the visiting doctors to the city of Peterborough. This closed an interesting and instructive meeting.

A new and promising medical society was organized in the county of Dufferin on Wednesday, October

1st, with an attendance of fourteen men who assembled at Orangeville. Following an excellent luncheon, the meeting was addressed by Dr. T. C. Routley, Secretary of the Ontario Association, who outlined the necessary procedure for the formation of a county society, and pointed out the advantages to be gained by the practitioners of the county in being so organized. After some discussion, it was unanimously decided to form a Dufferin County Medical Society, and the following officers were elected:—President, Dr. S. T. White, Shelburne; Vice-President, Dr. H. W. Baker, Grand Valley; Secretary-Treasurer, Dr. J. W. Leach, Orangeville. Following the installation of officers, excellent papers were presented by Dr. W. B. Hendry and by Dr. T. H. Middlebro, who is also Counsellor of District Number 3, with jurisdiction over the counties of Bruce, Grey and Dufferin, and who officially welcomed the new society into the Ontario Medical Association.

The annual meeting of District Number One of the Ontario Medical Association, comprising the counties of Essex, Kent, Elgin, Lambton and Middlesex, was held in London on Tuesday, October 7th, in conjunction with a meeting of the Western Ontario Academy of Medicine. In the morning, clinics were held at the Victoria Hospital. After luncheon at the Tecumseh House, to which all members were invited, addresses were given in the auditorium of the medical school by Dr. W. B. Hendry, of Toronto, and by Dr. C. B. Keenan, of Montreal; also by the President and Secretary of the Association. Dr. A. J. Grant, of London, District Counsellor, was the unanimous choice as Counsellor for the ensuing year; and Dr. J. D. Curtis, of St. Thomas was elected Vice-Counsellor.

On Wednesday, October 8th, the annual meeting of District Number Four, of the Ontario Medical Association, comprising the counties of Haldimand, Lincoln, Welland, Wentworth and Halton, was held in Hamilton in conjunction with the regular monthly meeting of the Hamilton Medical Society. A very excellent clinic was conducted in the morning at the Mountain Sanatorium, by Dr. J. H. Holbrook, and was attended by upwards of fifty practitioners of the district. At the afternoon programme there was an excellent attendance of over one hundred doctors, and the several papers which were read were received with much interest. "Intra-cranial haemorrhage of the new born," by Dr. A. R. Lindsay, of St. Catharines; "One thousand obstetrical problems," by Dr. O. A. Cannon, of Hamilton; "A case of deformity of the ankle joint in a child of three years," by Dr. Herbert Walker, of Dunnville; "Some of the problems of the modern general practitioner," by Dr. Chas. A. Page, of Oakville; "Pancreatitis," by Dr. A. D. Unsworth, of Hamilton; and "Cholecystitis," by Dr. F. B. Mowbray, of Hamilton. It was regretted that Dr. Parfitt, of Gravenhurst was not able to be present. Following the banquet at the Royal Connaught Hotel, addresses were given by Dr. Young, as President of the Ontario Association; Dr. Klotz, of Toronto; Dr. E. T. Kellam, of Niagara Falls, and Dr. T. C. Routley. The meeting was very successful both from point of interest and attendance.

Dr. George A. Ramsay is resuming practice in London, Ontario, after an absence of three months spent in some of the different orthopaedic clinics in England, but mainly at Liverpool at the clinic of Sir Robert Jones.

The semi-annual business meeting of the Ontario Medical Association will be held at the Academy of Medicine, 13 Queen's Park, Toronto, on Wednesday, January 14th, 1925. The morning session will be taken up by meetings of the Board of Directors and several committees of the Association. A general business session will be held in the afternoon, when several problems of moment to the profession in Ontario will be considered.

Under the auspices of the Committee on Inter-relations of the Medical Profession and the Public, a banquet will be held in the evening at the King Edward Hotel, to which will be invited upwards of twenty-five lay people, representing as many organizations in the community. An invitation is extended to all members of the Ontario Medical Association to attend both the afternoon meeting and the dinner.

MANITOBA

M. S. Hollenberg, M.A., B.Sc., M.D., L.M.C.C. has been awarded a fellowship in Medicine by the Medical Fellowship Board of the National Research Council, Washington, to be taken at Johns Hopkins University, Baltimore.

The fellowship was granted for one year starting December 1st, 1924.

The following is the programme of the Winnipeg Medical Society for the season 1924-1925: Sept. 19th, 1924, Business Session. Oct. 17th, 1924, "The Psychology of Wm. McDougall," Dr. Chas. Hunter. Nov. 21st, 1924, "Reports on the Winnipeg Survey of Child Health held in July, 1914," Dr. E. W. Montgomery. Dec. 19th, 1924, "Colles' Fracture," Dr. A. Gibson; "Ulcerative Colitis, Report of Case," Dr. T. G. Hamilton. Jan. 16th, 1925, "Abortions and their Treatment," Dr. S. Kobrinsky; "A Brief Discussion of some Surgical Problems of Children," (Lantern Slides), Dr. J. D. McEachern. Feb. 20th, 1925, "The Value of the X-ray in Obstetrics," (Lantern Slides), Dr. Ross Mitchell and Dr. M. R. MacCharles. Address, Chief Justice Mathers. March 20th, 1925, "Dementia Praecox," Dr. A. T. Mathers; "Some Blood Pressure Observations," Dr. J. D. Adamson. April 17th, 1925, "Medico-Surgical Boundary Lines in the Treatment of Pulmonary Tuberculosis," Dr. D. A. Stewart; "The Plaster Shell in the Treatment of Tuberculosis and Fracture of Spine." Dr. A. P. MacKinnon. May 15th, 1925, Annual Meeting. "Some Observations on Malignancy and Radium Treatment," Dr. F. Smith. Friday, Feb. 6th, 1925, Special Meeting. "Intestinal Health," Dr. W. F. Dey; "The Importance of the Colon in Chronic Abdominal Pain," Dr. C. R. Gilmour and Dr. J. C. McMillan. Friday, April 3rd, Special Meeting. Gordon Bell Memorial Lecture.

ALBERTA

The Anatomical Society, of Calgary, has been revived and re-organized with a good membership.

Dr. G. E. Palmer, of Calgary, who was married in England recently, has returned home with Mrs. Palmer.

Dr. H. G. Nyblett, of Calgary, who lately underwent a serious operation, is progressing slowly.

BRITISH COLUMBIA

The annual dinner of the Vancouver Medical Association was held on November 7th, at the Ambassador Cafe, Vancouver. This dinner is one of the outstanding events of the medical year in Vancouver, and is one of the important factors in the high standard of good fellowship and friendliness which obtains amongst the members of the profession in Vancouver. A programme of entertainment is provided, unique in such gatherings, and the orchestra of the Association, composed entirely of medical men, provides the music. The whole programme, music, entertainment, etc., is carried out entirely by members of the profession, no laymen are present, even as musicians. This allows for very much greater freedom of expression and relaxation of "the professional manner."

Dr. W. W. Chipman, late of Mayo, the Yukon, has removed to Vancouver, where he will engage in practice.

Dr. D. W. MacKay, of New Westminster, left on November 1st for Salmon Arm to assist Dr. A. K. Connolly in his practice.

Dr. W. T. Lockhart left on the Blue Funnel Liner *Achilles* on Oct. 23rd, for Kobe, Hong Kong and Manila. He expects to return about the end of January, 1925.

Dr. T. L. Butters, of Courtenay, Vancouver Island, has gone east for two months, owing to the serious illness of his father. His practice is being looked after by Dr. H. C. MacKenzie.

Dr. Saul Bonnell, of Fernie, an old time practitioner in this province, has removed to Vancouver, and will devote his attention entirely to eye, ear, nose and throat work.

Dr. W. S. Turnbull has completely recovered from his indisposition of the past summer. He is now in Toronto taking special work in obstetrics and gynaecology. He expects later to proceed to New York for further work along these lines.

On Wednesday, Nov. 5th, Dr. W. A. Dobson, of Vancouver, addressed the members of the Health Bureau of the Board of Trade, on "Some Aspects of Psycho-Therapy from a Community Point of View." Mr. Dobson had an attentive and interested audience of whom the greater number were prominent laymen.

The November General Meeting of the Vancouver Medical Association was held on the 4th instant; the speaker of the evening was Dr. J. J. Mason. Dr. Mason gave a very interesting and instructive address on "Abdominal Hysterotomy," illustrating his address by numerous case reports.

The Industrial Service Committee, under the able Chairmanship of Dr. A. B. Schinbein, is also doing good work. Several industrial contracts have been surveyed, and in one case a substantial financial improvement has been effected. A number of cases in dispute with the Workmen's Compensation Board have also been satisfactorily dealt with.

On October 28th, the Vancouver Medical Association was honoured by a visit from Dr. R. C. Coffey, of Portland, Ore. Dr. Coffey gave a clinic in the morning at the Vancouver General Hospital, when he discussed three cases of gastro-intestinal disorder, and dwelt particularly on the subject of right sided pain. In the evening Dr. Coffey gave an address before the Association on "The Quarantine Pack in Abdominal Surgery." The speaker illustrated his address by lantern slides and detailed his methods of using the quarantine pack with which he claimed to have had excellent results.

The busy office of the Executive Secretary has become a useful information bureau and clearing house for troubles. Rarely a day passes without it being visited by several medical men from various parts of the province asking for information, advice, or help in many different matters. Thirty-five locum tenens have been supplied through this office during the past year, and several vacancies filled.

The second luncheon of the season, of the British Columbia Medical Association will be held on November 14th. At this meeting an address will be given by Dean H. T. J. Coleman, B.A., Ph.D., on "Experimental Education." This subject should be of interest to all medical men and a large attendance is expected.

These luncheon meetings are proving a great success and do much to promote an excellent esprit de corps in the profession. Every effort will be made to make them more effective, and more interesting as time goes on.

The Association is to be congratulated on its choice of Chairman for its "Publicity and Educational Committee." Dr. Wallace Wilson is an indefatigable worker, and with his committee, is tackling a formidable public health programme for the winter months. A great amount of valuable literature from various sources has been received, and will be wisely and widely distributed so as to secure the best results. The *Province* newspaper has agreed to accept all the health articles we can furnish, and it is probable that "Health" talks will be broadcasted over the radio.

The Health Bureau of the Board of Trade held its first meeting on Wednesday, October 1st, when the question of the "Mentally Deficient Child" was taken up, and a very able address given by Miss Dauphinee, of the Vancouver School Board. A Committee has been appointed to go into this question and prepare a report for the Council of the Board of Trade, in order that some steps may be taken towards providing proper institutional treatment for children of low mental grades, and a proper classification of children in general for educational purposes. This bureau offers great opportunities to the medical profession, to perform more fully its duty to the community, by giving us an outlet for the expression of our knowledge to a section of the public that is particularly interested in promoting the welfare, and increasing the business efficiency of all classes; which realizes, too, that health is one of the chief assets, from a business point of view, that a city can possess. The preventive side of our art can be dwelt on with especial emphasis, and the recommendations of this Bureau will receive the closest attention and the warmest support from the Board as a whole. We may note here that at least one other Board of Trade, that of Kamloops, has an active Health Bureau. We would again urge on all medical men that they join the Board of Trade in their community, and work for the formation of a Health Bureau, where such is not already in existence. We are often accused, and not without reason, of being dilatory in taking the public into our confidence; and indeed, there is much knowledge and many facts that could be given to the public in ways like this, which would help to build up and safeguard its interests, which are also ours.

The Association

THE ANNUAL MEETING OF THE ASSOCIATION IN REGINA IN 1925

The fifty-sixth annual meeting of the Association will be held in the City of Regina, Sask., on the dates, June 22, 23, 24, 25 and 26, 1925. It was previously announced that the meeting would be held from June 15th to 19th, but it was found necessary to postpone it for one week. The first two days will be devoted to the transaction of the business of the Association by the Council. The remaining three days will be devoted to scientific sessions of a general character. It is the aim of the Committee in charge to present a well balanced programme of interest to the general practitioner. The personnel in charge of the meeting is as follows:—

President Elect.—Dr. David Low, Regina.

General Secretary.—Dr. T. C. Routley, 184 College Street, Toronto.

Local General Committee, Regina, and District Medical Society.—*Chairman*, Dr. S. E. Moore, Regina; *Secretary*, Dr. M. R. Bow, Regina.

Committee on Medicine:—

Dr. H. C. George, *Chairman;* Dr. J. B. Ritchie, *Secretary;* Drs. F. J. Ellis, Hall, Sr.; Fred. Guest, J. T. Waddell, McRitchie, R. McAllister.

Committee on Surgery:—

Dr. F. J. Ball. *Chairman;* Dr. J. C. Black, *Secretary;* Drs. C. R. Paradis, F. A. F. Corbett, T. A. Morrison, J. V. Connell, E. P. Alport, Martin, H. Jackes, W. A. Harvie, D. S. Johnstone.

Committee on Eye, Ear, Nose and Throat:—

Dr. Jas. McLeod, *Chairman;* Dr. McCusker, *Secretary*; Drs. A. Gorrell, A. N. Hardy.

Committee on Obstetrics and Gynaecology:—

Dr. H. M. Stephens, *Chairman;* Dr. J. Turnbull, *Secretary;* Drs. W. Thompson, McLean, L. Roy, R. Rogers, D. C. Hart.

Committee on Paediatrics:—

Dr. W. Coles, *Chairman;* Dr. Careau, *Secretary;* Drs. R. McAllister, J. Wright, Hall, Jr.; Dr. McFadden.

Committee on Public Health:—

Dr. J. M. Uhrich, *Chairman*; Dr. M. R. Bow, *Secretary*; Drs. F. Middleton, Davidson, M. Seymour, F. McGill.

Committee on Urology:—

Dr. W. Dakin, *Chairman*; Dr. C. Paradis, *Secretary.*

Committee on Tuberculosis:—

Dr. Ferguson, *Chairman*; Dr. J. B. Ritchie, *Secretary*; Drs. Good, E. Kells, Broughton, Kirby, A. Savoie, Hamilton.

Committee on Radiology:—

Dr. Henry, *Chairman*; Dr. J. Connell, *Secretary.*

Finance Committee:—

Dr. O. Rothwell, *Chairman;* Dr. McCusker, *Secretary;* Drs. F. Ellis, A. Corbett, C. Paradis, J. Turnbull, F. W. Hart, Indian Head.

Committee on Arrangements:—

Dr. S. E. Moore, *Chairman*; Dr. H. H. Mitchell, *Secretary*; Drs. D. C. Hart, E. B. Alport, Davidson, Carmichael, C. McCutcheon, H. Jackes.

Committee on Publicity:—

Dr. McLean, *Chairman*; Dr. W. Dakin, *Secretary;* Drs. H. George, H. Jackes, W. Harvey, H. Mitchell, W. Thompson, F. W. Hart, Indian Head.

Committee on Exhibits:—

Dr. S. E. Moore, *Chairman;* Dr. J. B. Ritchie, *Secretary*; Drs. O. Rothwell, F. Guest, C. Roy, A. Savoie.

Committee on Hotels and Housing:—

Dr. S. E. Moore, *Chairman*; Dr. J. Turnbull, *Secretary*; Drs. D. Johnson, A. Corbett, T. Morrison.

Radio Committee:—

Dr. H. Mitchell, *Chairman*; Dr. J. Turnbull, *Secretary*; Drs. McCusker, C. Paradis.

Committee on Transportation:—

Dr. J. Turnbull, *Chairman;* Dr. F. Ellis, *Secretary;* Drs. J. Black, W. Dakin, A. F. Corbett, E. Kells, J. G. Wright, Kraminsky, T. Waddell, A. Savoie, D. Sweeney.

Committee on Motor Transport:—

Dr. H. Jackes, *Chairman*; Dr. E. Alport, *Secretary*; Drs. W. Harvey, D. Johnson, D. C. Hart, J. Turnbull.

Committee on Entertainment:—

Dr. D. Low, *Chairman*; Dr. S. E. Moore, *Secretary*; Drs. T. Morrison, W. Harvey, H. Jackes, E. Alport, H. George, H. Mitchell, McCusker, D. Johnson, C. Paradis, W. Dakin, A. Gorrell.

The Ladies' Entertainment Committee is composed of the wives of the doctors.

Investments

Several of our previous articles emphasized the fact that there should be a very close relationship between the investor and his investment banker.

We further emphasize the fact that the investment banker of good repute and experience takes great pains at all times to be of real service to his clients and to assist him in placing his savings in securities that would be safe profitable investments.

At the 13th annual convention of the Investment Bankers Association of the United States, several very good papers were read having as subjects the betterment of the business at large. One of the most interesting was that given by Dwight W. Morrow, of J. P. Morgan & Company, in which he spoke of the responsibilities of an investment banker

The entire speech being too long to reproduce here, the following paragraphs are extracts which may be of interest to you.

"The most important factor in investment banking—the commanding and compelling factor—is the investor who has saved a surplus. The important act in investment banking is the decision to exchange the command over present comforts for a promise of someone to pay interest and principal at future dates. The important actor in investment banking is the one who makes that decision The investment banker, whether he be located in a large city or a little hamlet, is fundamentally a merchant. He is a middleman who renders what assistance he can in guiding the flow of savings into industry and commerce. He owes a heavy responsibility to the public Above all, he owes a special responsibility to that part of the public which is made up of the savers. An investment banker might make a temporary profit out of the misfortune of the investor, but he can make no durable success except as his success is built upon his real service to the investor. In the long run, if he serves the investor well, he prospers In the long run, if he serves the investor ill, he fails."

"We must never forget that the money that passes through our hands comes from thousands of savers. These savers may be mechanics or clerks or stenographers or school teachers or professional men or bankers. For one reason or another they are willing to exchange $100 with the command which that gives them over present goods or services, for a promise of someone to pay interest and principal to them at a future date If we fail to keep in mind the sacrifices that the investor is making of his to-day for the benefit of his to-morrow we shall fail entirely in our function. A great deal of criticism is directed at financial houses. Some of it may be justified. Much of it certainly is unjustified The one thing, however, that should sustain an investment banker in the important function that he performs for society is the confidence that the investors have in him.

"This confidence of the investor in the banker is an essential element in the process of enlisting new savings in private enterprise or in governmental construction or reconstruction. A man or woman may be willing to invest savings in a particular security because he has confidence in the borrower, or because of a belief in the purpose for which the money is to be used. Or an attractive rate of interest may exert an influence. Or sentimental factors may play a part. But perhaps the greatest single factor in leading the investor to risk his savings is the confidence that he has in his banker. He knows and trusts his banker or he would not deal with him. He relies to a greater or lesser extent on the banker's judgment. He feels that if his banker is willing to take the responsibility of offering him a bond the bond is probably good. I do not maintain that the investor does not have his own likes and dislikes. He does, and they frequently are determining influences in his decisions. Nevertheless, the banker's opinion is with very many investors the most important influence in the selection of the investment.

"It follows, I think you will agree, that the banker must give primary consideration to his customer—to the investor. He must be forever on the alert to protect the investor The banker is, of course, human. Like anyone else he may make mistakes. But he must never make the mistake of offering a security to his clients that he does not believe is good. He must never allow himself to be coerced into offering a doubtful investment, or to be led into selling one by his desire to make a wide profit quickly. Safety of the investor's principal and interest must come first. That is the foundation upon which our business is built. To desert it is to face disaster and betray a trust."

The motives expressed in the preceding paragraphs may be taken as a code that is followed by reputable investment bankers, worthy of the name.

With this issue expires the agreement by which the material for the Financial Page has been supplied. If you desire the Department to be continued it is necessary that an expression of opinion to that effect be addressed to the General-Secretary.

Members are invited to write to the General-Secretary, Dr. T. C. Routley, 184 College St., Toronto, for information or advice regarding investments.

Inquiries will be entirely confidential, and answers will be based upon information believed to be reliable, fair and unprejudiced.

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Book Reviews

Man's Mental Evolution, Past and Future. By Harry Campbell, M.D. 74 pages. Price 3/6 net. Published by Bailliere, Tindall and Cox.

This is an essay along a very interesting line, namely the attempt to prove that mental evolution is a definite matter and a simple matter. The writer says, "While it seems certain that man is no longer evolving intellectually, yet he may still be morally. The lazy, the intemperate, the dishonest, the anti-social, those who shun the cares of fatherhood and motherhood are being eliminated while their opposites are surviving."

The writer's good opinion of his fellow men should lead the optimists not only in medicine but in all classes to read this modest little book that contains the views of a well known physician. G. W. H.

Modern Methods in the Diagnosis and Treatment of Heart Disease. By Francis Heatherly, M.B., B.S. (Lond.), F.R.C.S., Superintendent Heart Clinic, Manchester, and Cardiologist to the Ministry of Pensions. 8vo, xi + 199 pages. Price $2.50. Toronto, McLelland and Stewart Ltd., 1924.

This concise but illuminating text was written on the suggestion of an officer of the Ministry of Pensions who felt that such a statement of the present knowledge regarding heart disease might prove useful to the general practitioner, particularly to the man not conversant with the teachings of the new school of cardiology. It is clearly written, and is by a man of extensive experience. The fact that the author has had patient criticism and helpful advice from such outstanding men as Sir Thomas Lewis and John Hay gives every assurance as to the soundness of its teaching. It contains no tracings from the electrocardiograph or polygraph, instruments not in general use, but the author makes use of the lessons learned from these aids to diagnosis and prognosis. It appears to be one of the most helpful and at the same time most readable of recent small books on cardiology. It can be most highly recommended and should have a hearty welcome from the profession. J. H. E.

Intravenous Therapy. Its Application in the Modern Practice of Medicine. By Walter Forest Dutton, M.D. Medical Director, Polyclinic and Medico-Chirurgical Hospitals, Graduate School of Medicine, University of Philadelphia. 8vo xi + 542 pages, illustrated. Price $5.50. Philadelphia, F. A. Davis Company, 1924.

This work includes venesection, transfusion of whole or modified blood, and the introduction of saline or tonic solutions into the circulation and other medicaments by the intravenous route. Though several manuals have been published dealing with blood transfusion and with serum therapy this would appear to be the first to appear in English upon the general subject of intravenous therapy. As such, it will find a welcome. The historical outline of transfusion and intravenous therapy is comprehensive and written in an interesting manner. The chapter on venesection is short, the technique well described, but the clinical indications for its employment receive rather scant notice. In the chapters on the technique of blood transfusion, it seems strange that the author clings to the Moss classification in blood grouping with some reference to Brem's modification and the method of Ewing, yet says nothing of the Jansky classification which in 1921 was recommended by a Committee representing the immunologists, bacteriologists, and pathologists. On a par with this is the omission of the work of the late L. Bruce Robertson, namely exsanguination transfusion. References are made in the section on history to an endeavour to take out the poisonous blood and replace new, but that this is a modern practice is not mentioned except under the subheading in treatment of the toxaemia of burns. Some three hundred pages are devoted to therapy. The author has accumulated a mass of material from the literature with source references but does not present it in any critical way and offers little personal comment upon the value of intravenous medication as reported by various writers in such widely divergent conditions as actinomycosis, aneurism, angina pectoris, asthma, influenza, cirrhosis of the liver, migraine, rheumatic fever, snake-bite, varicose veins, and other conditions. The literature of this method of therapy is rapidly growing, so that it is perhaps impossible to give an opinion of value upon the procedure as reported by many writers. Only time and further observation will allow conclusions of real value. The volume will be welcomed as a presentation of our present knowledge of what is proving to be a valuable procedure, the limitations of which may not yet be defined. J. H. E.

Pharmacology and Therapeutics or the Action of Drugs in Health and Disease. By Arthur H. Cushny, M.A., M.D. Professor of Pharmacology, University of Edinburgh. 8th edition, completely rewritten. 707 pages with 73 illustrations. Price $6.00. Published by Messrs. Lea and Febiger, Philadelphia, Pa.

The present eighth edition of this well known text-book is in many respects an improvement on its predecessors . It is a less bulky volume which is partly due to a change in its paper and it has undergone a revision somewhat decreasing its length with considerable advantage. The chapter on digitalis has been very carefully rewritten and is possibly the best chapter on this subject in any of the recognized text-books. One has no hesitation in recommending the purchase of this book to the practitioner who wants to buy a readable book on pharmacology and therapeutics written by a pharmacologist. The printing and binding are excellent and the reviewer detected no misprints. V. E. H.

Modern Methods of Treatment. By Logan Clendening, M.D., Assistant Professor of Medicine and Lecturer in Therapeutics, University of Kansas. Large 8vo. of 692 pages, 77 illustrations. Price $9.00. St. Louis, The C. V. Mosby Company, 1924.

The author states that the purpose of this book is to present a comprehensive statement of the best modern thought and practice in the treatment of those diseases which may be included in internal medicine. As a teacher of students he has been unable to find a book he was willing to recommend. His criticisms of current text-books include, that of being badly balanced, including too much, insufficient detail, failing to be abreast of the best medical thought, and that in general they are written in atrocious English. We shall not undertake to express an opinion as to how he has succeeded in overcoming these imperfections. He has not overcome them all. The book is divided into two parts, general therapeutics and special therapeutics. The chapters in Part I. deal with rest, drugs, biological therapy and prophylaxis, endocrinology, dietetics, physiotherapy in five chapters, climatology and balneology, psychotherapy, and miscellaneous procedures. Six physicians are responsible for special

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chapters in the work. In the chapter on drugs, the only official preparations mentioned are those in the United States Pharmacopeia. No mention is made of British Pharmacopeia preparations. The Canadian reader would have to know whether the preparations of the two pharmacopeias were of same strength before following the dosage given. We cannot but admire the author's outspoken opinion of the worthlessness of many of the vaccines, serums, ductless gland substances and other preparations foisted upon the profession by pharmaceutical houses. It would appear to be a safe general guide in outlining methods of treatment. The therapy of specific diseases is that generally followed by the author in his own practice and appears to be based on sound observation.

J. H. E.

Life Insurance Examination. Edited by Frank W. Foxworthy, Ph.B., M.D., Indianapolis. Large 8vo, 738 pages, 156 illustrations. Price $9.00. St. Louis, The C. V. Mosby Company, 1924.

Forty-nine collaborators have, with the editor, contributed the sixty-eight chapters which are found in this manual. It appears to cover most of the questions which may arise in the mind of the examiner, who has to pass upon the insurability of an applicant and contains much of interest to the medical director or referee. The contributions of Canadian writers seem particularly well written and Strathy's chapter on army service as an insurance problem is perhaps the most attractive in the book. The work is a safe and sound text-book for the examiner. With its instruction put into practice, the medical board should have no fault to find with the local examiner. The young practitioner beginning insurance work will find it a reliable guide. Some of the chapters appear to be contributions giving tabular and case record reports upon which medical referees might base action on conditions not usually considered insurable. Some of these seem rather out of place in a work primarily for the examiner. Yet much of the book is for the medical referee and his board. Such a work, however, does not seem to demand page after page of radiograms of the gastro-intestinal tract, nor fifty pages on malignant epithelial neoplasms with photographic reproduction of pathological specimens and case reports. The chapters on insurance of substandard lives, on health conservation, welfare work, fraud, and legal aspects of life insurance examinations help to make a complete presentation of the various phases of the medical department of modern insurance. It is the most complete text-book of the medical aspect of life insurance we have seen.

J. H. E.

Diseases of the Eye. By Charles H. May, M.D. Eleventh Edition. William Wood & Company, New York, 1924.

In this edition the author has adhered to his original idea of presenting a concise manual for students and general practitioners.

The book has not been increased in size, but has been kept up to date. Chapter XI on "Disease of the Ciliary Body," and Chapter XXV on "Disturbances of Motility," have been rewritten. In both the order has been somewhat changed, especially in the latter where the operative treatment concludes the chapter.

There is a new coloured plate showing the normal fundus in an individual of very light complexion, and also that of the negro. Some new half-tone illustrations have been added.

The subject of ophthalmology is well covered; the commoner diseases are described with comparative fulness, while the rarer conditions are treated with less detail.

The illustrations are numerous and excellent, and are a large factor in explaining the book's deserved favour.

J. A. M.

What Every Mother Should Know. By Charles G. Kerley, M.D. 103 pages. Price 50 cents. Published by Paul B. Hoeber, Inc., New York City. Second Edition, revised.

This little book follows along the general lines of the "Care of the Baby" but does not go into the details that are necessary for all mothers to know regarding the care of her infant.

It is to be regretted that the author does not advocate simple milk and water dilutions instead of the more complicated cream and lime water mixtures, experience having proven that the former are more satisfactory.

A. B.

What Does Your Child Weigh. By E. B. Lowry. 187 pages, price $1.25. Published by Forbes and Company, 443 S. Dearborn St., Chicago, Ill.

The author discusses in detail malnutrition from all angles and then proceeds to discuss the general care and dieting of children of the pre-school and school age. An interesting addition to the book is a good discussion on environment and its influence in the home. It concludes with a most instructive account of the favourable influence of camp life and its general management. The book is well written and contains interesting practical information for both physicians and parents.

A. B.

Everlasting Life—A Creed and a Speculation. By W. W. Keen, M.D., LL.D. Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia. 12 mo. 86 pages. Philadelphia and London. J. B. Lippincott Company (1924). Price $1.00

Dr. Keen's little book "I believe in God and in Evolution" secured a wide circulation bringing a message of hope and belief to many whose minds were in doubt. In a similar way the present volume with his discussion of the virgin birth, and his reasons for the acceptance of the divinity of Christ irrespective of the question of virgin or natural birth, will doubtless be a source of peace to many troubled minds. He expresses his faith in the atonement. He argues that everlasting life is a logical necessity for man and presents the evidence which convinces him of immortality. He sketches the anxious period of doubt through which he passed, and from which he emerged with a broad, happy, sunny belief in the goodness, mercy and love of God and a real, glorious belief in the atonement. He offers the book with a prayer "that its message may bring to many others the same comfort that it has brought to me."

J. H. E.

Anaesthesia. By James Tayloe Gwathmey, M.D., with collaborators on special subjects. Second Edition, 8vo, xxviii + 799 pages, 272 illustrations. Price $9.00. New York and Toronto, 1924, The Macmillan Company of Canada.

This new edition is dedicated to the late Charles Baskerville who collaborated with the author in the preparation of the first. In its new form this work must be regarded as one of the most comprehensive and authoritative of our text-books dealing with anaesthesia. It gives in a practical form all the essential facts and directions for the administration of anaesthetics, and emphasizes the care, judgment, and experience demanded for the safe induction of anaesthesia; it is stimulating to the student of the subject, suggesting many lines of further research, and covers all the important literature of recent years. In the presentation of special aspects of anaesthesia, such as rebreathing, endotracheal insufflation, colonic administration, local, intravenous, and spinal anaesthesia, the use of ethylene, and the medico-legal status of the anaesthetist, the author has had the assistance of collaborators who have special knowledge in these

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particular fields. The historical résumé is intensely interesting. The evaluation of the various substances used in anaesthesia is an important part of the work as is the presentation of the special indications for their employment. The general physiology of inhalation anaesthesia is discussed at length. Various types of apparatus used for general anaesthesia, and the technique for special operations are fully presented. Treatment before, during and after anaesthesia forms an important chapter. In the presentation of local anaesthesia, the technique of administration is fully discussed and the numerous illustrations add greatly to the value of the text especially in the chapter on regional anaesthesia. The military surgical operating room receives special consideration and is followed by a valuable section devoted to anaesthesia in thoracic surgery. The author is to be congratulated on the success of his first edition. The evidence of care in revision of the present edition bespeaks a warm welcome. J. H. E.

Chemical Dynamics of Life Phenomena. By Professor Otto Meyerhof. One of the series of Monographs on Experimental Biology. Price $3.00. 110 pages, illustrated. Published by J. B. Lippincott Company, Montreal.

This fascinating series of lectures would doubtless prove of the greatest interest to the physician who wishes to keep abreast of the time were it more popularly written. This would be a difficult task and it was not the intention of the author that it should be a book for general consumption; rather is it meant for those scientific workers who are delving deeply into the cause of life and the mechanisms of the body. To the physician, perhaps the two most interesting features are the account of the experiments to which Meyerhof contributed so much, and which have given us a further insight into anaesthesia than we previously possessed. These researches go to show that all anaesthetics owe their activity to their property of being absorbed on to the surface of cells and of the finer particles within the cell and thus to decreasing cell oxidation and interfering very definitely with two or three of the methods by which cell oxidation occurs. The other interesting feature is the summary of Meyerhof's share in the discovery of the mechanism by which energy is furnished for muscular movements. This seems to depend upon the changing of the glycogen of the muscle, possibly through an intermediate step into lactic acid. The lactic acid in its turn leads to a change in the surface of the protoplasm of the muscle fibres such that a shortening occurs. The muscle, however, is much more economical than the ordinary human engine in that 4/5 of the lactic acid produced is reconverted into glycogen of some equivalent substance by the energy produced by the burning of the other 1/5 of the acid. V. E. H.

Diagnosis of Nervous Diseases. Sir James Purves-Stewart, K.C.M.G., C.B., M.D., F.R.C.P. Sixth Edition Edward Arnold & Co., London.

This work is, or should be, so well known, that a detailed review appears almost superfluous. The final chapters, viz. War Neuroses and Organic War Lesions of the Nervous System, which appeared in the fourth and fifth editions have been deleted and a short chapter on Delirium added. In spite of this the volume is considerably larger than in the preceding editions, a circumstance which the author, in the preface, appears to lament, but which, after all, is no drawback since all the recent work has been included. The chapters on Anatomy and Physiology have been advantageously elaborated, and in the third chapter details of intelligence tests have been inserted, adding much to the value of the work. The subjects of aphasia and cerebro-spinal fluid have been completely re-written and include now all the recent developments in these important fields. It is gratifying to read the chapter on psycho-neuroses for it deals with the subject from the rational standpoint of the neurologist, giving a logical picture rather than floundering in the nebulous meanderings of the many "analytical" schools which are so frequently lost in a maze of theorizing and fallacious hypotheses. Although the work is intended for those more particularly interested in neurology it is equally useful to the general practitioner. There is scarcely an unusual symptom or abstruse point in diagnosis which is not mentioned, and all signs and syndromes are succinctly but graphically described. The text is adequately illustrated by suitable case histories and excellent cuts. A complete index adds much to the convenience of the book.

F. B.

Books Received

Human Physiology—By C. G. Douglas, C.M.G., M.C., D.M., F.R.S. and J. G. Priestley, M.C., D.M. 232 pages, illustrated. Price $4.00 Published by Oxford University Press, 25 Richmond St. W., Toronto.

Orthopedic Surgery for Nurses—By James Warren Sever, M.D. 203 pages, illustrated. Published by the Macmillan Company of Canada, Limited, Toronto.

Obstetrics Normal and Operative—By George P. Shears B.S., M.D. 745 pages with 423 illustrations. Price $8.00. Published by J. B. Lippincott Company, Montreal, Que.

International Clinics—Vol. III. Thirty-fourth series, 1924.—By Henry W. Cattell, A.M., M.D. 304 pages, illustrated. Published by J. B. Lippincott Company, Philadelphia.

The New Hygiene—By H. W. Hill, M.B., M.D., D.P.H., L.M.C.C. 319 pages, Price $3.00. Published by the Macmillan Company of Canada, Limited.

Neurologic Diagnosis—By Loyal Edward Davis, M.S., M.D., Ph.D. 12 mo. of 173 pages with 49 illustrations. Price $2.00 net. Published by W. B. Saunders Company, Philadelphia. Canadian Agents, The J. F. Hartz Co., Limited, Toronto.

The American Illustrated Medical Dictionary.—(Dorland) New (12th) Edition, Revised and Enlarged. Large octavo of 1,296 pages with 338 illustrations, 141 in colours. Price $7.00 net. Published by W. B. Saunders Company, Philadelphia. Canadian Agents—The J. F. Hartz Co., Limited, Toronto.

Organotherapy in General Practice—256 pages, illustrated. Published by G. W. Carnrick Company, New York.

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The Modern Practice of Tooth Extraction—By Richard Cahn, D.D.S. 132 pages, illustrated. Price $2.00. Published by The Macmillan Company of Canada, Limited, Toronto.

Applied Chemistry for Nurses—By Stella Goostray, R. N. and Walter G. Karr, M.S., Ph.D. 230 pages. Price $2.00. Published by The Macmillan Company, Limited, Toronto.

Recent Advances in Medicine—By G. E. Beaumont, M. A., M.D. and E. C. Dodds, M.B., B.S., B.Sc. 292 pages with 37 illustrations. Price $3.25. Published by The Macmillan Company of Canada, Ltd., Toronto.

Minor Surgery and Bandaging—By Gwynne Williams, M.S., F.R.C.S. 423 pages with 239 illustrations. Price $3.15. Published by The Macmillan Company of Canada, Ltd., Toronto.

Text-Book of Physiology—By H. E. Roaf. 605 pages, illustrated. Price 25s. net. Published by Edward Arnold & Co., 41 Maddox Street, London, W.1. 1924.

Text-Book of Pathology—By Robert Muir. 774 pages, illustrated. Price 35s. net. Published by Edward Arnold & Co., 41 Maddox Street, London, W.1. 1924.

The Chemistry of the Blood in Clinical Medicine—By O. L. V. de Wesselow, M.B., F.R.C.P. 255 pages, illustrated. Price 15s. net. Published by Ernest Benn Limited, 8 Bouverie Street, London, E.C.4. 1924.

Hygienic Fundamentals of Food Handling—By Charles Thom and Albert C. Hunter. 228 pages, illustrated. Price $3.00. Published by Williams and Wilkins Company, Baltimore. 1924.

Surgical Clinics of North America (Cleveland Clinic Number)—Vol. 4, No. 4. (August, 1924). 248 pages, 218 illustrations. Price $16.00 net. W. B. Saunders & Co., Philadelphia. Canadian Agents—The J. F. Hartz Co., Limited, Toronto and Montreal, 1924.

Practical Surgery Illustrated—By Victor Pauchet. Translated by F. R. B. Atkinson. With an introduction by Sir Charles Gordon-Watson, C.M.G., F.R.C.S. Vol. 1, 293 pages; vol. 2, 252 pages, illustrated. Price 18s 6d each. Published by Ernest Benn Limited, 8 Bouverie Street, London, E.C.4, 1924.

Basal Metabolism in Health and Disease—By Eugene F. DuBois, M.D. 372 pages, illustrated. Price $4.75. Published by Lea and Febiger, 706 Sansom Street, Philadelphia. 1924.

Outlines of Internal Medicine—By Clifford Bailey Farr, A.M., M.D. Fourth and revised edition, 377 pages, illustrated. Price $2.75. Published by Lea and Febiger, 706 Sansom Street, Philadelphia. 1924.

Diagnosis and Treatment of the Infectious Diseases.—By F. H. Thomson, M.B., C.M., D.P.H. 208 pages, illustrated. Price 7s 6d net. H. K. Lewis & Co. Ltd., 28 Gower Place, London, W.C.1. 1924.

The Extra Pharmacopoeia—By W. Harrison Martindale, Ph.D., F.C.S. and W. Wynn Westcott, M.B., D.P.H. Eighteenth edition, in two volumes. Vol. 1, 1,163 pages. Price 27s 6d net. Published by H. K. Lewis & Co. Ltd., 28 Gower Place, London, W.C.1. 1924.

Notes on Pathological and Operative Obstetrics—By Lyle G. McNeile, M.D. Sections I. to VIII. Published by Lefax, Incorporated, Philadelphia.

The Nervous Patient—By Millais Culpin, M.D., F.R.C.S., with a Chapter on "The Major Psychoses" by Dr. Stanford Read, and on "Eye Symptoms" by Mr. W. S. Inman. 305 pages. Price 10s 6d net. Published by H. K. Lewis & Co. Ltd., 28 Gower Place, London, W.C.1. 1924.

Diabetic Diet—By A. Doris McHenry, B.A. and Marjorie M. Cooper, B.A. With an Introduction by J. A. Gilchrist, B.A., M.B. and F. G. Banting, M.C., M.B., F.R.C.S., F.R.C.P., M.D. A Handbook for Diabetics 62 pages Price $1.50. Published by The Musson Book Co. Ltd., 263 Adelaide Street West, Toronto. 1924.

Fundamentals of Human Physiology—By R. G. Pearce, B.A., M.D. and J. R. MacLeod, M.B., D.Sc., F.R.S., assisted in the third edition by Dr. Norman D. Taylor. Third edition. 349 pages, illustrated. Price $3.50. Published by C. V. Mosby Company, 508 North Grand Boulevard, St. Louis, Mo. 1924.

Pathogenic Microorganisms—By William Hallock Park M.D. and others. Eighth edition, enlarged and thoroughly revised, with 211 engravings and 9 full-page plates. Price $6.50. Published by Lea and Febiger, 706 Sansom Street, Philadelphia. 1924.

Kohler's Disease of Tarsal Scaphoid or Os Navidulare Pedis Retardatum.—F. C. Kidner and Felipe Muro, Detroit, report on a clinical and pathologic study of a typical case of os naviculare pedis retardatum. They believe that treatment of this condition is of the greatest importance, because it is necessary to protect the damaged nucleus from strain and crushing, in order that flatfoot or weak foot may be avoided in later life. The treatment should correspond with that advised by one of them for Legg-Perthes' disease, and for slipping epiphysis of the femur—long continued rest. This rest should be in plaster of Paris with the foot in strong overcorrection in varus and cavus. It should be continued for from two to three months. A good clinical result was obtained in the case cited.—*Jour. Am. Med. Ass.*, Nov. 22, 1924.

Effort to Preserve the Lister Ward in the Royal Infirmary of Glasgow.—A writer in *The Scotsman* laments the "passing of the Lister Ward," mourning that "the last stone of the famous Lister Ward was cast down a few days ago, and is now but a memory—a memory, however, not only of the greatest ameliorative achievement in the surgery of any age, but also, and unhappily, of the blindness of man." The British Association recently convened a meeting of societies interested in the preservation of monuments of significance; and the desire was expressed that there should be greater powers of control in the conservation of all such memorials. The correspondent says that if the wanton destruction of the Lister Ward gives but a fresh impulse to conservation of other irreplaceable memorials, its passing may, perhaps, mark the last achievement of "irresponsible intractability." Pleas for the preservation of the Ward came from the French Academy of Medicine, from Europe and America, Japan, and the South American Republics. But all in vain! At an annual meeting the chairman said that the matter was a question of money, and later a surgical body of the United States offered to raise money for its preservation. A Glasgow gentleman offered to defray the whole cost of reconstruction as a memorial and the offer was refused. Pharaoh-like the more opportunities placed within reach the more the majority of the managers hardened their hearts, and a more glaring instance of what may not ineptly be termed "thrawness" has yet to be recorded. "The destruction has been consummated; the Ward has been cast down; and it is much to be hoped that neither the action of the managers nor the widespread agitation and authoritative pronouncements for preservation will affect injuriously the inflow of contributions for the alleviation of suffering humanity." Though the Ward has gone the Name lives on and will remain in imperishable memory. We are pleased to announce that a movement is on foot to raise a memorial to Lister in Canada. We would make the suggestion that a ward or set of wards or an operating room in every Canadian hospital be named the "Lister" ward or theatre. These would naturally be surgical wards.—*Can. Med. and Surg. Jour.*, Oct., 1924.

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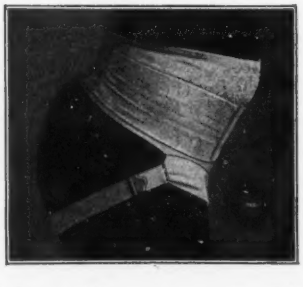

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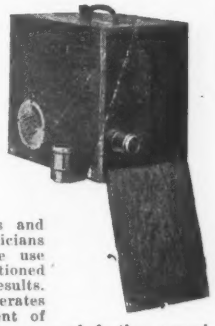

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4.—Courses in Surgical Anatomy. Time required and Fees depend upon regions covered.

5.—Courses in Surgical Specialties. Local Anaesthesia, Genito-Urinary Surgery and Cystoscopy, Ear, Nose and Throat, Blood Transfusion, Surgery of Head, Neck and Spine, Emergency Surgery for General Practitioners, etc.

Reservations should be made in advance as classes are limited. Only Graduates in Medicine accepted.

PERSONAL INSTRUCTION, ACTUAL PRACTICE AND EXCEPTIONAL EQUIPMENT

(Courses are Continuous Throughout the Year)

For further information address **EMMET A. PRINTY, M.D., Director**

2040 LINCOLN AVE. (Near Augustana Hospital)